

Land Protection

PRESERVE BOUNDARY

Official Maps and Authorized Acreage

Background

Section 502 of the California Desert Protection Act established the Preserve and cited the acreage at approximately 1,419,800 acres. The Congressional maps delineating the boundary of the Preserve and referred to in section 502, are dated May 17, 1994, are often commonly called the "S-21 Maps." This set of 21 blueline map sheets provided the basis for the National Park Service to prepare the official boundary maps and legal description. The National Park Service prepared the official boundary maps (seven map sheets dated July 1996) according to section 504 and submitted them to Congress in August 1996, completing the legislative process of preparing official boundary maps of the Preserve. These maps are on file with the superintendent for inspection. All maps provided in this document reflect the official boundary.

The acreage of the Preserve identified in section 502 was estimated based on calculations done manually, and apparently did not include some private lands in Lanfair Valley. However, sections 516 and 517 of the California Desert Protection Act provide authority to acquire **any** lands within the boundary of the Preserve (under certain conditions prescribed), and that acquired lands automatically become a part of the Preserve. The National Park Service interprets the Congressional language and official maps to mean that private lands, other than Catellus, in the Lanfair Valley area, are not part of the Preserve for purposes of regulation, but because they are included within the external boundary, they may be acquired and would then become part of the Preserve automatically. Therefore, the official boundary map submitted to Congress reflects a more accurate total acreage of 1,589,165 acres of land included within the external boundary of Mojave. The *Land Protection Plan* provides a breakdown of the landownership.

A minor clerical correction in the boundary of the Preserve and the legal description was made in 1999 to correct an inaccurate description in the official legal description of the boundary at Budweiser Wash where it intersects interstate 40. The boundary was previously attached to a non-existent road, and was thus redescribed along a nearby section line. The legal description was also corrected to reflect that private lands in Lanfair Valley, other than Catellus, are not part of the Preserve, *until acquired*.

Plan Actions

As parcels are acquired the official boundary maps and legal description maintained by the National Park Service will be updated to reflect the change in status for these Lanfair Valley parcels.

Modifications to Boundary. NPS criteria for examining potential boundary modifications in a general management plan are done with the purpose of adding lands with significant resources or opportunities, or that are critical to fulfilling the park mission. No such suggestions for boundary adjustments were received during scoping. To create a boundary change proposal to exclude land from the park or from wilderness would not fit the NPS criteria for boundary adjustments.

No changes in the boundary of the Preserve are proposed at this time. During the prolonged debate over the California Desert Protection Act the boundaries were subjected to considerable Congressional scrutiny and debate. The National Park Service believes a comprehensive examination of potential boundary modifications at this time is unwarranted and should be delayed until the Preserve has been able to manage the area with the existing boundaries for a time to determine if there are areas where adjustments are justified.

Potential future boundary modifications that have been suggested as additions include the Viceroy Mine exclusion on the eastern boundary of the Preserve, and the MolyCorp Mine exclusion between the Clark Mountain Unit and the main unit of the Preserve. These areas were previously included in the East Mojave Scenic Area, but were excluded in the legislation due to mining interests. Recently, Viceroy has indicated that mining will end within about two years. The current boundary configuration in this area excludes a vast area that is topographically and visually within the Lanfair Valley area. In addition, the area is home to bighorn sheep and some significant cultural resources. Adjustment of the boundary to include this area will reduce the potential for incompatible uses. MolyCorp has initiated a plan of operation for continued operation and expansion of their facilities.

WILDERNESS MANAGEMENT

Background

In 1994, with passage of the California Desert Protection Act Congress designated 695,200 acres of wilderness within the Mojave National Preserve.

In 1995 the federal managers of the Mojave Desert adopted "Principles for Wilderness Management in the California Desert" as guidance for themselves and their staff in implementing the Wilderness Act and pertinent sections of the California Desert Protection Act. The managers represented the Bureau of Land Management (California Desert and Yuma Districts), the National Park Service (Death Valley and Joshua Tree National Parks and Mojave National Preserve) and the U.S. Fish and Wildlife Service (California State Supervisor). This interagency effort also provides some consistency in desert wilderness management.

Plan Actions

The National Park Service will continue to manage wilderness areas for the use and enjoyment of the American people in a way that would leave them unimpaired for future use and enjoyment as wilderness. Management will include the maximum statutory protection allowed for these areas, the preservation of their wilderness character, and the gathering and dissemination of information regarding their use and enjoyment as wilderness. Public use of wilderness may include recreation, scenic preservation, scientific study, education, conservation, historical use, and solitude. A separate backcountry/wilderness management plan will be prepared (in accordance with Director's Order 43) to address specific management issues.

The Wilderness Act generally prohibits motorized equipment or mechanized transport in designated wilderness areas; however, it allows them "as necessary to meet minimum requirements for the administration of the area for the purpose of this Act." The superintendent will continue to administer wilderness with the minimum disturbance to the area or its resources. This method of managing the wilderness area is often referred to as the "minimum tool concept." All decisions pertaining to administrative practices and use of equipment in wilderness will be based on this concept. Potential disruption of wilderness character and resources and applicable safety concerns will be considered before, and given significantly more weight than, economic efficiency. If some compromise of wilderness resources or character was unavoidable, only those actions that will have localized, short-term adverse impacts would be acceptable.

The NPS will take steps necessary to protect Federal reserved water rights that are explicitly reserved for BLM and NPS wilderness [sec. 706 (a)] in a quantity sufficient to fulfill the purposes of the Act.

Existing developments in Wilderness will be examined in light of the restrictions in the Wilderness Act on structures and installations, subject to private rights.

Wilderness Maps and Legal Description. Section 602 of the California Desert Protection Act requires that maps and legal descriptions of the wilderness areas be prepared as soon as practicable. The process of interpreting the wilderness boundaries provided by Congress and preparing the official maps and legal descriptions is currently underway. Once completed, final wilderness boundary maps will be submitted to Congress. It is assumed that the actual wilderness acreage may deviate from the approximate acreage of 695,200 acres estimated in section 601 of the act.

Additions or deletions to designated wilderness, or changes in corridors prescribed by Congress, will require legislation to enact. No such proposals are being made at this time.

Access to Private Lands and Interests in Wilderness. A minimum tool determination will be used to determine if granting approval for motorized/mechanical equipment use within wilderness will be allowed. Motorized access to private land, range developments, guzzlers and other interests in wilderness would be considered extraordinary and will not be routinely allowed unless unusual circumstances warrant it.

The CDPA provides two provisions relative to access to wilderness areas:

- Owners of nonfederal lands or interests in land are provided adequate access for reasonable use and enjoyment of their property in units of the national park system, including NPS wilderness and BLM wilderness [sec 708]. Access will normally be allowed only via foot or horseback, however approval motorized access is determined on a case-by-case basis using the minimal tool analysis described under the wilderness section.
- Section 705 of the CDPA recognizes past uses of the parks and wilderness areas by Indian people for traditional cultural and religious purposes, and ensures access for these uses. The Act also provides for temporary closures to the general public, upon request of an Indian tribe or Indian religious community, of one or more specific portions of the park or wilderness area in order to protect the privacy of such activities. Any closures are to be for the smallest area

practicable and for the minimum necessary period. Access must be consistent with the purpose and intent of the American Indian Religious Freedom Act, and the Wilderness Act if applicable.

FIRE MANAGEMENT

Background

Data gathering and research began in fiscal year 1998 to examine the history of fire and its effects on the natural environment. Results from this effort and other information will be used in developing a fire management plan. Preparation of the plan is scheduled to begin in FY 99. An ongoing vegetation mapping effort by the U.S. Geological Survey will help the park refine fuel types and their distribution.

The National Park Service recognizes the natural role of fire in ecosystem processes. Recent changes in federal wildland fire management policy allow for a broader range of fire management options within carefully defined parameters, as established in an approved fire management plan. Management options include full suppression, prescribed fire; natural fire managed to achieve benefits to natural resources, or a combination of these. In many cases, appropriate management strategies will be pre-determined in the planning process, based on life and property considerations, location, identification of natural or cultural resources at risk, existing vegetation and fuels, terrain, and other factors. In other instances, management strategies will be determined on a situational basis, factoring in additional variables such as current and predicted weather conditions, staffing levels, resource management objectives, terrain, and identified planning parameters.

Plan Actions

The current fire policy is to suppress all fires in the Preserve until fire history and effects studies are completed and a fire management plan is written and approved. These studies will provide data for determining whether to provide for natural and prescribed fires to burn in the Preserve. Minimum impact suppression techniques are utilized in all areas of the park.

Firefighter safety and the protection of life is first and foremost. All human caused fire will be suppressed, and all fire management actions will be implemented using methods, equipment and tactics that cause the least impact on natural and cultural resources. Heavy equipment, such as bulldozers, will

not be used except in emergencies as determined on a case-by-case basis by the superintendent. All staff will receive training on appropriate strategy, tactics and precautions in desert tortoise habitat.

Fire management strategies within wilderness areas will also be determined based on the criteria discussed. Additionally, a "minimum requirement" process will continue to be used for every fire in wilderness to determine the "minimum tool or administrative practice necessary to successfully and safely accomplish the management objective with the least adverse impact on wilderness character and resources" (NPS *Management Policies* 6:4). The use of mechanized equipment and transport (i.e. chain saws, portable pumps, vehicles and aircraft) will remain an exception to be exercised sparingly and only when it meets the test of being the minimum necessary for wilderness purposes. The superintendent or his/her designee must approve such exceptions.

The effects of fire on components of desert ecosystems, and the extent and degree of its historic role on biota are not well understood. The National Park Service is assessing and documenting the state of existing fire effects research in desert ecosystems. Over the short-term (1–10 years) fire management strategies will be developed based on the best available science, field observations of fire effects and post-burn monitoring of selected sites. Additionally, in cooperation with other desert parks, allied federal and state land managers, agency and university research staff, the National Park Service will assess research needs and long-term studies will be initiated. Specific research topics might include fire effects on desert tortoise and its habitat, post-fire successional trends, or effective post-fire rehabilitation strategies.

DISTURBED LANDS

Background

Disturbance of the native vegetation and soils in the Preserve has occurred as a result of many human activities, including mining, road building, utility lines, dumps, grazing, burros, offroad vehicles, and fire. No comprehensive inventory of this disturbance has been completed to document the areas, period of disturbance and extent of recovery. However, some inventory work has been initiated, such as for abandoned mines. Some of the disturbed areas are still subject to the use that caused the disturbance, and will not be subject to rehabilitation until such time as the activity is curtailed.

Abandoned Mines. The Preserve has an inventory of abandoned mining properties that was generated from existing information in U.S. Geological Survey and Bureau of Mines databases. This inventory reflects a legacy of past mining in the Preserve has left an estimated 419 abandoned mine sites with possibly thousands of mine openings and workings. Preliminary observations indicate the problem is a significant land management issue that may deserve program status. The Preserve initiated detailed and comprehensive inventories of these sites in 1998 and will continue this inventory and documentation process.

The 1992 Western Region Directive WR-085, Management of Abandoned Mineral Lands outlines the framework for a park abandoned mine lands program. The preliminary inventory of abandoned mining properties was generated from existing information in U.S. Geological Survey and Bureau of Mines databases. Additional surveys are currently underway to further inventory abandoned mineral properties.

Hazardous Materials. Numerous potential hazardous material sites existed within the Preserve when it was established. The National Park Service has removed hazardous materials and conducted cleanup operations on over a dozen sites, including illegal drug labs, abandoned wastes on mining claims, and illegal dumps. New sites discovered are responded to with immediate surveys and cleanup operations through licensed contractors. These locations are primarily related to mining activities where chemical processing took place, however, there are continuing instances of illegal waste dumping or clandestine drug lab activities. Potential hazards are prioritized and investigated based on relative threat posed to human health and the environment. Hazards and threats documented through this investigation process are addressed by seeking special project funding for environmental clean up work.

In addition to managing the cleanup of contaminated waste spilled from pipelines owned and operated by Unocal (MolyCorp Mine) in the Mountain Pass area of the Preserve, the Preserve is currently working actively on hazardous waste issues at Morningstar Mine, Sterner Claims (Rainbow Wells and Columbia Mine), Telegraph Mine, and Hole-in-the-Wall.

Solid waste locations are scattered throughout the Preserve. These sites are primarily associated with mining or ranching operations, but are no longer used. The National Park Service and the Bureau of

Land Management have partnered with state and local agencies to inventory and respond to open dump sites within the California desert. Occasional household hazardous materials are typically encountered. An inventory and assessment program is underway. Some cleanups have occurred by contract, through partnerships with volunteer organizations and state agencies, and by staff participation in all employee cleanup projects.

Plan Actions

The National Park Service will seek to perpetuate native plants and animals as part of natural ecosystems. Natural landscapes and plants will be manipulated only when necessary to achieve approved management objectives. To the maximum extent possible, plantings in all areas will consist of species native to the park or appropriate for the period or event commemorated as outlined in the Secretary of the Interior's Standards for the Treatment of Historic Properties. Local seeds will be collected from areas as near the disturbed site as possible. If these seeds were not available an assessment will be made on the possible impacts of importing and planting seeds that may be genetically dissimilar to the native vegetation. The use of exotic species will conform to the NPS exotic species policy (NPS 2001). Landscapes and plants might be manipulated to maintain habitat for threatened or endangered species, but in natural areas, only native plants could be used if additional plantings were done. Existing plants will be manipulated in a manner designed to restore or enhance the functioning of the plant and animal community of which the endangered species is a natural part.

In natural areas, disturbances caused by natural phenomena such as landslides, earthquakes, floods, and natural fires will not be modified unless required for public safety, protection of NPS facilities, or necessary reconstruction of dispersed-use facilities, such as trails. Terrain and plants could be manipulated where necessary to restore natural conditions on lands altered by human activity.

In cultural areas, such as at Kelso Depot and Zzyzx, trees, other plants, and landscape features will be managed to reflect the historical landscape or the historical scene associated with a significant historical theme or activity.

Abandoned Mines. The National Park Service will complete a comprehensive inventory of all Abandoned Mine Lands to serve as a basis for future planning and reclamation program implementation.

The inventory will build upon existing information from the U.S. Geological Survey, Bureau of Mines, and BLM databases. Mines will not be reclaimed until evaluated for historical significance and integrity in compliance with the National Historic Preservation Act of 1980, as amended. The program goals will include eliminating physical safety hazards and hazardous materials; mitigation of adverse environmental impacts to park resources, including the restoration of landscapes, soils and vegetation; protection of important wildlife habitat such as bat habitat; and preservation of historic and cultural resources which may include stabilization of structures.

Hazardous Materials. Site assessments are planned for Aiken Mine, Reily Camp, Kelso Dunes Mine, Death Valley Mine, New Trail Mine, and Rattle Snake Mine. Some of these sites may be eligible for listing on the National Register. A National Register Determination of Eligibility will be conducted before hazmat action is taken.

Mojave has potentially significant issues related to transportation (highway, rail, natural gas and petroleum pipeline) incidents. Mojave will work with the transporters to develop a specific plan to address operations and responsibilities in case of a major incident. This plan will also address routine hazardous waste generation and disposal (paints, oils, etc) and incidents of illegal dumping (investigation, response and disposal).

The National Park Service is also required by Secretarial Order 3127 to conduct a site assessment for hazardous materials on all properties being considered for acquisition. This process begins with a certified inspector completing a Level I checklist. If no evidence of previous hazardous materials use exists on the property or in the county, state or federal records, the property is cleared for acquisition. If contamination is discovered or suspected, samples may be collected and analyzed at a licensed laboratory. Cleanup costs are generally considered the responsibility of the landowner.

NON-FEDERAL LAND AND EXTERNAL DEVELOPMENT

Background

In 1994, when the Preserve was established, there were over 2,000 nonfederal land parcels within the boundaries of Mojave National Preserve totaling nearly 220,000 acres. In addition, there are hundreds of outstanding rights that are owned by indi-

viduals or corporations (water rights, mining claims, rights-of-ways, easements).

California state lands include 36,503 acres of school land, a 139.4-acre tract of land at Piute Springs owned by the Department of Fish and Game, the Providence Mountains State Recreation Area owned by the Department of Recreation, and 2,199 acres of land in the Granite Mountains Natural Reserve owned by the University of California.

Total private land in the Preserve, as of October 2001, is 86,708 acres. Less than 50 people are permanent residents in the Preserve with most private tracts remaining undeveloped. There are over 70,000 acres of private land in the Lanfair Valley area. The remainder of private lands are scattered throughout the Preserve. In June 2000, the Wildlands Conservancy and the National Park Service cooperated in jointly funding the acquisition of 82,628 acres of Catellus lands.

Patented mining claims total 1,350 acres in the Preserve. As of June 2000, there were approximately 471 unpatented claims in 28 groups totaling just over 12,500 acres.

Water Rights. Initial research on outstanding water rights in the Preserve recorded at the California Water Resources Control Board revealed that there are approximately 110 appropriated water rights claims on 97 water sources (springs, seeps, streams, wells) in the Preserve. Many of these were obtained by ranchers who lease grazing allotments. In November 2000, the National Park Service also accepted donation of the Kessler Springs and Lanfair Valley permits, including water rights on 53 sources. Other rights may exist that have not been recorded with the State. Water rights that were held by the Bureau of Land Management on numerous water sources have been converted to the National Park Service. In April 2000, the National Park Service accepted donation of the Granite Mountains grazing permit, including water rights on 29 sources.

Development on Private Lands. Most development on private lands is regulated by the County of San Bernardino. The county adopts and enforces land use regulations that control the type and density of land use and development on private property, and ensure adherence to basic public health and safety standards. A General Plan for the county provides guidance for acceptable development on private lands. With the exception of one parcel at Cima, the entire Preserve is zoned for resource con-

servation, where single family homes are allowed with minimum lot size of 40 acres.

Section 519 of the CDPA provides that private lands within the boundary of Mojave are not subject to rules and regulations that are applicable solely to federal lands. However, this section also provides that this restriction does not apply to mining, oil and gas development or Clean Air Act requirements. The National Park Service has legislated authority to regulate mining on patented mining claims and oil and gas development on private lands. Regulations are contained in 36 CFR part 9A for mining and part 9B for oil and gas. 36 CFR Part 6 precludes the development of new sites for the disposal of solid wastes.

Plan Actions

Land Acquisition. The Department of the Interior policy requires that the National Park Service prepare a land protection plan for every unit of the National Park Service that has nonfederal lands or interests within its authorized boundary. Detailed descriptions of the nonfederal lands and interests are included in Mojave National Preserve's *Land Protection Plan* (2001).

The National Park Service will seek funds to acquire private lands and interests in the Preserve on the basis of priorities presented in the *Land Protection Plan*. The California Desert Protection Act (CDPA), section 516, provides the National Park Service authority to acquire all lands and interests in lands with the boundary of the Preserve. Donations and exchanges of real property from willing sellers will be a priority, and third-party acquisitions from willing sellers will be encouraged. Private land in wilderness, habitat for threatened or endangered species, and riparian habitat are considered high priority. Purchase of base property from willing seller ranchers is a priority over other acquisitions, in accordance with CDPA direction (section 510). Purchase of willing seller base property in desert tortoise habitat will receive first consideration. Water rights will be purchased with permit.

Private land that contains single family homes will not be considered for acquisition, unless offered by the owners, or unless development on the property is proposed or occurring that is detrimental to the integrity of the Preserve or is incompatible with the purposes of the CDPA, Title V.

Whenever acquisitions of private land occurs, the parcel will automatically become part of the Preserve pursuant to section 517 of the CDPA, and no bound-

ary adjustment is needed. Parcels within the boundaries of wilderness automatically become wilderness upon acquisition according to section 704.

External Development on Adjacent Lands. To fulfill the mandate to preserve park resources unimpaired for future generations, adopting strategies and actions beyond park boundaries has become increasingly necessary. Because ecological processes cross park boundaries, and parks typically do not incorporate the entire ecosystem or scenic vista, many activities proposed or existing on adjacent lands have the potential to significantly affect park resources, programs, visitor experiences and wilderness values.

Recognizing these issues, the park staff will work cooperatively with others to anticipate, avoid, and resolve potential conflicts and to address mutual interests in the quality of life for community residents. This strategy will include participation in local and regional planning activities of other federal, state and local agencies, tribal governments, neighboring landowners and non-governmental groups and organizations. The park will establish close ties with permitting agencies and ensure that notices of proposed development or activities are received. Park staff will review permit applications and environmental documents and determine threats to park resources or visitor experience. The park will engage constructively within this arena to identify incompatible activities in the same manner that any adjacent landowner would do. The NPS will utilize all available authorities to protect park resources and values from potential harm and will seek to mitigate adverse activities. The park will utilize this forum to promote better understanding of the park's mission and mandates, and the reasons for our concerns beyond our boundaries.



Management of Park Resources

As a unit of the national park system, Mojave must be managed in accordance with the National Park Service preservation mission as provided in the agencies authorizing legislation (Organic Act of 1916; 16 USC 1), which provides that the primary purpose of park units is:

"...to conserve the scenery and the natural and historic objects and the wild life therein, and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

RESOURCE PROTECTION GOALS AND CRITERIA

Specific resource protection goals and criteria have not yet been established. Management of the Preserve's resources is currently guided by direction provided in the enabling legislation and NPS regulations and policies. A set of protection goals and criteria will be developed through the inventory and monitoring program to establish a standard set of resource protection guidelines.

INVENTORYING AND MONITORING

Background

Inventorying and monitoring of the Preserve's natural and cultural resources is necessary to gain a more complete understanding of their value and condition.

Project priorities are determined on the basis of existing staff availability and funding. An annual performance plan is prepared annually that provides goals, objectives, and annual work plans. Mojave's strategic plan also establishes five-year goals that provide a limited view of resource issues and allocation of staffing and funding.

The Bureau of Land Management established long-term monitoring areas in the Ivanpah Valley and near Colton Hills. These are fenced areas that have precluded cattle and burro grazing for many years. Dr. Hal Avery of the Biological Resource Division, USGS, Riverside, California, is presently conducting research and monitoring of the desert tortoise the Ivanpah area. A reexamination of the plant growth within and outside of Colton Hills enclosure has not been conducted for almost 20 years. This area has been segregated from large mammal grazing pressure for over 30 years and may be used to measure the effects of grazing on the desert environment.

Plan Actions

Mojave will assemble baseline inventory data describing the natural and cultural resources under its stewardship, and will monitor the resources at regular intervals to detect or predict changes. The resulting information will be analyzed to detect changes that may require intervention and to provide reference points for comparison with other, more altered environments. Mojave will also use this information to maintain — and, where necessary, restore — the integrity of natural systems, and to protect the public, park staff, and the park infrastructure.

Mojave will develop and implement a systematic, integrated program to identify, inventory, and monitor its natural and cultural resources. This program will be developed through collaborative partnerships with government agencies and public and private organizations with natural and cultural resource management or research expertise. A comprehensive strategy will be developed and implemented to ensure that regional, local or national trends are documented and appropriate actions undertaken. The National Park Service has identified twelve data sets that each park unit should collect in order to have a basic understanding of their resources. Mojave is actively working in cooperation with other desert parks on an integrated inventory and monitoring strategy, using the vital signs approach.

An example of a needed inventory is a biological inventory of all spring and wetland areas on Preserve lands, including the identification of threats, impacts, and necessary protections. Included in the inventory will be recommendations for restoration. In addition to federal lands, the National Park Service will work with private holders of water rights to restore modified water sources to natural conditions while still allowing for valid existing uses.

Mojave will consult with the research community regarding the benefits of retaining exclosures if the cattle grazing permits are retired.

NATURAL RESOURCES

Physical Resources

Air Quality/Visibility

Background

The Mojave Desert Air Quality Management District manages and enforces the Clean Air Act's air quality standards in the Mojave National Preserve. The

district includes the desert portion of San Bernardino County.

Congress established the Prevention of Significant Deterioration program as part of the Clean Air Act. To facilitate the implementation of this program, an area classification scheme was established. This classification scheme has class I receiving the highest degree of protection with only small amounts of certain kinds of additional air pollution (sulfur dioxide and particulate matter) allowed. The other two areas are class II, which allows moderate increases in certain air pollutants; and class III, which allows a large amount of new air pollution (Congress has yet to designate any class III areas). There are no class I areas in the California Mojave Desert. Mojave National Preserve is a class II floor area, meaning that it may never be redesignated to class III.

The Clean Air Act developed national ambient air quality standards for a finite number of criteria pollutants. The criteria pollutants are: sulfur dioxide, carbon monoxide, total suspended particulates, nitrogen oxides, lead, ozone, and particulate matter less than 10 microns in diameter (PM₁₀).

The Environmental Protection Agency has classified the Mojave National Preserve as a nonattainment area for ozone and PM₁₀ standards. Nonattainment areas are areas that are not in compliance with the national ambient air quality standards, and therefore must reduce pollution to reach compliance.

The National Park Service is responsible for protecting air quality under both the 1916 Organic Act and the Clean Air Act. Although the Clean Air Act gives the highest level of air quality protection to class I areas, it also provides many opportunities for the National Park Service to participate in the development of pollution control programs to preserve, protect, and enhance the air quality of all units of the national park system, including class II areas.

Sections 118 and 176 of the Clean Air Act require federal agencies and facilities to meet all federal, state, and local air pollution control laws and regulations. If units or facilities are located in areas that do not meet federal or state air pollution control standards (nonattainment areas), those units or facilities must conform to requirements established to attain and maintain those standards. The requirements may include provisions to reduce emissions from existing facilities and limit emissions from proposed facilities on a greater than 1:1 basis.

Plan Actions

The National Park Service will seek class I designation for the Preserve and will seek to perpetuate the best possible air quality in parks because of its critical importance to visitor enjoyment, human health, scenic vistas, and the preservation of natural systems and cultural resources. The National Park Service will work toward promoting and pursuing measures to safeguard these values from air pollution's adverse effects and will strive to set the best example for others to follow in all the agency's development and management activities. In cases of doubt as to the effects of existing or potential air pollution on park resources, the National Park Service will err on the side of protecting air quality and related values for future generations.

Since Mojave is located in a nonattainment area for one or more air pollutant, no action proposed in this plan will lead to violations of federal or state air pollution control laws or regulations, and no action will increase emissions or violate the state conformity requirements. The Preserve's staff will work with appropriate air pollution control officials to ensure compliance with all requirements.

Viewsheds/Visual Quality

Background

Visibility is probably the most important air quality resource in the desert region, and it is the most easily affected by activities that generate dust (especially fine particulates) and sulfur dioxide. Visibility impacts occur from long-range transport of pollutants from as far away as the San Joaquin Valley and the Los Angeles basin (RESOLVE study 1988, cited in BLM 1995).

Nearby sources of emissions include the Army's National Training Center at Fort Irwin; Viceroy Mine near Searchlight, Nevada; the Mojave Generation Station near Laughlin, Nevada; MolyCorp Mine and Stateline Power Generation Station near Primm (Stateline), Nevada; and vehicle traffic on Interstates 15 and 40.

Local pollution sources in the desert consist primarily of particulate matter from off-road vehicles, wind-blown soil, mining operations, livestock grazing, and agricultural activities. These sources have left certain areas denuded or sparsely vegetated, allowing wind erosion to occur and air quality to suffer and occasionally causing violations of particulate standards at many locations.

The National Park Service will seek to enhance beneficial effects and to mitigate adverse effects in ways consistent with its policies and management objectives. The agency will encourage compatible adjacent land uses and seek to mitigate potential adverse effects on park values by actively participating in planning and regulatory processes of neighboring jurisdictions, other federal, state, and local agencies, and Native Americans.

Plan Actions

Mojave National Preserve will prepare guidelines for the built environment to establish visual consistency and themes in facility development. Guidelines will also be created for reaching visual compatibility with surrounding landscapes, significant architectural features, and site details. The primary objective of these guidelines will be to create harmony between the built environment and the natural environment.

With the increasing use of cellular communication equipment, more antennas and relay equipment are being installed throughout the country. The overall management goal of each NPS unit is to protect and maintain the visual quality of the landscape and the built environment. To help achieve this goal, a communication management plan will be prepared that will address the NPS goals and the need to establish sites for communication equipment. No new permits will be issued until the completion of such a plan. The plan will include the following requirements:

- All above-ground communication equipment must not distract from the visual quality of the scenery.
- Each new proposal for radio or cellular antennas or towers must demonstrate that the equipment would provide a critical service for visitors and NPS staff and is not duplicative.
- The installation of new equipment outside the Preserve or on existing communication towers or at defined sites must be considered before the construction of new sites is considered.
- New locations will be reviewed through the environmental assessment process, which must consider impacts on the visual quality of the scenery.

The National Park Service will work with neighboring landowners on topics of mutual interest being sensitive to the influences and effects that park management might have on adjacent landowners.

Night Sky

Background

Mojave is a naturally quiet desert environment with very dark night skies that offers visitors and researchers opportunities for natural quiet, solitude, and star gazing with few human caused noise or light glare sources. However, the northern and southern boundaries are interstate highways. Traffic on these highways and the lights from Baker, California, Primm, Nevada, and Laughlin, Nevada are beginning to have a noticeable adverse effect on the night sky. No known background data currently exist that document the dark sky. Mojave recognizes that preservation of this resource is critical to the future visitor experience.

Plan Actions

The National Park Service will partner with communities and local government agencies to minimize reflected light and artificial light intrusion on the dark night sky, recognizing the essential component that a carpet of stars against a black night sky is for a natural outdoor experience. The National Park Service will strive to set the best example in all developments that involve the use of artificial outdoor lighting, ensuring that such lighting is limited to basic safety requirements and shielded to the maximum extent possible, to keep light on the intended subject and out of the night sky. Baseline light measurements will be established to monitor changes over time.

Natural Ambient Sound

Background

Mojave National Preserve is generally a quiet landscape, with occasional, short-term interruptions of the natural quiet. Depending on the atmospheric conditions, the closeness to a noise source, and topographic features, visitors generally experience very little human-caused noise while in the backcountry. Occasional overflights of commercial jets at cruising altitudes, small private aircraft, and rare military jets at low altitudes may be heard. Vehicle noise is generally not an issue within the Preserve in spite of some nearby major roads (I-15, I-40, and major paved roads). Because of the Preserve's vastness, most areas are well away from traffic and its noise. Other areas where localized noise occurs are at the Rasor Open Area, adjacent to the western boundary of the Preserve, the Union Pacific and Santa Fe rail lines, and mining operations. The Union Pacific and Southern Pacific railroad lines are heavily used, but the faint distant rumble of freight

trains is faintly audible when one is within a few miles of the tracks.

Plan Actions

The National Park Service will strive to preserve the natural quiet and sounds associated with the physical and biological resources of Mojave. Activities causing excessive or unnecessary sounds in or adjacent to parks, including low-level aircraft overflights, will be monitored, and action would be taken to prevent or minimize unnatural sounds adversely affecting park resources and values or visitor enjoyment. The National Park Service will cooperate with the Department of Defense to minimize impacts on visitors and resources from military overflights. The National Park Service will strive to set the best example in all developments that involve the use of equipment that produces noise.

Soils

Background

A wide array of soils comprises Mojave National Preserve. Examples include: soils with sandy textures with gravel and cobble cimas; soils with medium textures; soils with calcium carbonate (e.g. caliche) accumulations; fine textured soils found in playa prone areas; soils with a developed horizon reflecting age or formation during a different moisture regime; shallow soils; and upland soils. The park also contains escarpments, ephemeral streams, a large area of dunes, and a lava flow area (e.g. Lava Beds). Detailed soil surveys have not been conducted. However, a digitized, general soils map is available from the statewide digital soils database.

Plan Actions

Mojave will seek to inventory and preserve its soil resources, and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources. Soil surveys will follow National Cooperative Soil Survey Standards. Products will include soil maps, determinations of the physical and chemical characteristics of soils, and the interpretations needed to guide resource management and development decisions. In particular, areas of existing disturbance and potentially sensitive soils, such as cryptogammic crusts, will be highlighted for possible restoration or protection.

Potential impacts on soil resources will be monitored as necessary. Management action will be taken to prevent or mitigate adverse, potentially irreversible, impacts on soils. Conservation and soil amendment

practices may be implemented to reduce impacts. Importation of offsite soil or soil amendments may be used to restore damaged sites. Offsite soil normally will be salvaged soil, not soil removed from pristine sites, unless the use of pristine-site soil can be achieved without causing any overall ecosystem impairment. Prior to using any offsite materials, Mojave will develop a prescription, and select the materials that necessary to restore the physical, chemical, and biological characteristics of original native soils without introducing any exotic species.

When soil excavation is an unavoidable part of an approved facility development project, Mojave will limit the excavation to the minimum amount necessary, and avoid erosion or offsite soil migration during and after the development activity.

Water

Background

Groundwater. Groundwater is found underneath most of the Preserve and varies greatly in depth and quality. The Mojave River is the primary subsurface water source for the Preserve (BLM 1996). Groundwater is the Preserve's principal source for desert springs, seeps, and a few ephemeral streams, and its only perennial spring, Piute Creek. The maintenance of groundwater quality and quantity is critical to the survival of desert surface waters and their associated plant and animal life.

Surface Water Sources. Over 200 springs and seeps have been identified in the Preserve (King and Casebier 1981). Many, if not most, have been altered by the installation of retention dams, pipelines, and troughs for livestock use. Most are also available for wildlife and burro use. In the eastern portion of the Preserve is a 1-mile perennial stream called Piute Creek, which is an important wildlife water source as well as a popular recreation site. The small springs and seeps in the Preserve offer isolated and limited water for plants, wildlife, or domestic or commercial purposes. Some springs produce potable water, but overall water quality is poor because of high dissolved mineral concentrations (BLM 1996).

Water wells have been drilled primarily for domestic use and livestock needs, but a number of wells have also been drilled for mining use. Viceroy Gold Mine has developed a well field that is adjacent to and within the Preserve. This well field is within a 9-square mile area located northwest of the mining site. Viceroy is permitted to pump 725 acre-feet per

year, but it has been averaging about 400 acre-feet (about 11 million gallons per month) since 1995 (BLM 1997).

Water wells have also been drilled specifically for visitor and administration use at the Mid Hills campground and Hole-in-the-Wall campgrounds.

Floodplains and Wetlands. No systematic inventory of 100 and 500-year floodplains, or wetland areas has been undertaken in the Preserve. Some general information is available on USGS topographical maps. Specific inventories are often conducted when a development project may encounter these resources.

Water Rights. Initial research on outstanding water rights in the Preserve that are recorded at the State Water Resources Control Board in Sacramento revealed that there were approximately 110 appropriated water rights claims on 97 water sources (springs, seeps, streams, wells) in their records that existed in the Preserve in 1997. Many of these were obtained by ranchers who lease grazing allotments. In April 2000, the NPS accepted donation of the Granite Mountains grazing permit, including water rights on 29 water sources. Other rights may exist that have not been recorded with the State. In November 2000, the National Park Service also accepted donation of the Kessler Springs and Lanfair Valley permits, including 53 water rights.

The California Desert Protection Act of 1994 in section 706(a), with respect to each wilderness area, reserves a quantity of water sufficient to fulfill the purposes of the act. Section 706(b) mandates that the Secretary of the Interior and all other officers of the United States take "all steps necessary to protect the rights reserved by this section." Federal reserved rights generally arise from the purposes for the reservation of land by the federal government. When the government reserves land for a particular purpose, it also reserves, explicitly or by implication, enough unappropriated water at the time of the reservation as is necessary to accomplish the purposes for which Congress or the president authorized the land to be reserved, without regard to the limitations of state law. The rights vest as of the date of the reservation, whether or not the water is actually put to use, and are superior to the rights of those who commence the use of water after the reservation date. General adjudications are the means by which the federal government claims its reserved water rights. The McCarran Amendment (66 Stat. 560, 43 U.S.C. 666, June 10, 1952) pro-

vides the mechanism by which the United States, when properly joined, consents to be a defendant in a suit to adjudicate water rights. The precise nature and extent of the National Park Service's water rights probably will remain uncertain until the United States is joined in an adjudication, the Department of Justice files claims to water rights on behalf of the National Park Service, and the court decrees the United States. Hence, it is the responsibility of both the National Park Service and the Bureau of Land Management to protect the reserved water rights established under the California Desert Protection Act and other applicable federal authorities.

Plan Actions

Groundwater and Surface Water. Water for the preservation, management, development, and use of the Preserve's water system will be obtained and used in accordance with legal authority and with due consideration for the needs of other water users. Water will be used efficiently and frugally. The National Park Service will seek to protect, perpetuate, and possibly restore surface water and groundwater as integral components of park aquatic and terrestrial ecosystems. Surface water and groundwater withdrawn for public use will be the minimum amount necessary to achieve Preserve purposes. All water withdrawn for domestic use will be returned to the watershed system once it has been treated to ensure that there will be no impairment of Preserve resources. Interbasin transfers will be avoided. The effects to the Preserve's resources from water withdrawn from sources outside of the Preserve (for example, developments at Primm and mining activities at the Molycorp mine at Mountain Pass) would be monitored. If adverse effects were found, the National Park Service will take all legal and appropriate steps necessary to protect natural resources from the effects attributed to such activities. The park will work with holders of water rights to restore modified waters sources to natural conditions while still allowing for valid uses consistent with the State permit.

Pursuant to Congressional direction in the California Desert Protection Act, Mojave National Preserve will seek to restore, maintain, or enhance the quality of all surface and ground waters within the Preserve consistent with the Clean Water Act (33 USC et seq.) and other applicable federal, state, and local laws and regulations.

Floodplain and Wetland Areas. The occupancy and modification of floodplain and wetland areas

will be avoided wherever possible. Where no practicable alternatives exist, mitigating measures will be implemented to minimize potential harm to life, property, and the natural floodplain and wetland values. Management of floodplain and wetland areas is subject to the provisions of Executive Order 11988, "Floodplain Management" (42 USC 4321), Executive Order 11990, "Protection of Wetlands" (42 USC 4321), and the Rivers and Harbors Act (33 USC 401 et. seq.), and section 404 of the Clean Water Act (33 USC 1344).

Water Rights. Should the National Park Service seek to acquire private land within its boundaries, the essential water rights attached to those lands will also be sought for acquisition.

The National Park Service in its general planning process for each unit of the national park system, and the Bureau of Land Management in its planning process for each wilderness area, have jointly agreed to incorporate their respective policies, guidelines, and administrative procedures and apply the following principles to discharge their responsibilities under section 706 of the California Desert Protection Act to manage and protect federal reserved water rights (Desert Managers Group 1995):

- inventory all water sources within the boundaries of the wilderness area/park unit
- identify as a federally reserved water right all unappropriated water from any water source identified on federal lands within the boundaries of designated wilderness and/or park areas in the California desert
- share water source inventory data
- jointly request from the California Division of Water Rights notification of any filing for appropriated water rights within or adjacent to the boundaries of BLM wilderness or units of the national park system
- defend federally reserved water rights through the state of California administrative process and, if necessary, seek judicial remedy in the appropriate courts
- quantify the amount of water reserved to fulfill the purpose of the reservation as part of any adjudication in California in which the United States may be joined under the McCarran Amendment
- where necessary, pursue acquisition of any existing nonfederal appropriated water right within their respective jurisdictions

- because use of percolating groundwater does not require a permit from the state of California, participate in local government proceedings that authorize nonfederal parties to withdraw percolating groundwater where such withdrawals may impact water sources within their respective jurisdictions to which federally reserved water rights are attached
- participate in any proceedings pursuant to Nevada state water law that may authorize withdrawal of groundwater where such withdrawal may impact water sources within their jurisdictions to which federally reserved or appropriated water rights are attached

Paleontological Resources

Background

The Preserve contains a fragile and irreplaceable paleontological record. The richness and diversity of that record is unknown as significant inventory work has not been performed on the various geologic formations that do or could contain fossil resources. Fossils have many values including (1) stratigraphic indicators for correlation of deposits containing them and for determination of relative geologic age, (2) records of past life forms showing the course of evolutionary trends of plants and animals, and (3) evidence of changing paleoenvironments.

A literature and records search was completed for the Preserve area by Robert E. Reynolds, Curator, Earth Sciences, San Bernardino County Museum, Redlands, California. The records and literature search identified a number of potentially sensitive fossiliferous areas in the planning area. Significant paleontological resources and records relating to paleobiostatigraphic events that occur within or near the Preserve are as follows:

- The world's oldest mitosing cells, 990 million years old, are preserved in silica in the Beck Spring Formation.
- Significant Cambrian trilobite and invertebrate fossil localities mark the boundary of the Paleozoic Era, 550 million years of age.
- The only dinosaur tracks in California and the only record of Jurassic dinosaurs in California are in the Mescal Range, just north of the Mojave National Preserve.
- Early records of crustal extension and breakup that occurred 24 million years ago to form basins in the Mojave Desert are found in or near the Preserve. Significant occurrences of fossils,

including rhinoceros, camel, canid, felid, bird track, and plant, are located in the Ship Mountains, Little Piute Mountains, Hackberry Mountains, Castle Mountains, Lanfair Valley, and Wild Horse Mesa in or near Mojave National Preserve.

- There are significant Plio-Pleistocene fossil localities, which are being damaged by erosion and amateur collecting, at Valley Wells and Kingston Wash.
- Cave deposits in the Mescal Range have produced significant vertebrate fossils.

Plan Actions

Paleontological resources, fossils and their associated data, are the physical evidence of past life on the earth and include representatives of all kingdoms of life — Monera, Protista, Fungi, Plantae, and Animalia. Trace fossils (burrows, tracks, etc.) are included. These resources will be managed in accordance with NPS *Management Policies* and goals established by the National Park Service Strategic Plan.

Paleontological resources will be inventoried, monitored, protected, and preserved, and where appropriate, made available for scientific research. Collection of specimens will only be allowed in limited circumstances. All specimens collected from the park will be appropriately curated and have adequate documentation of the specimen, the locality, the geologic context, and other pertinent data. Where appropriate, the resources will be managed for public education and interpretation in accordance with park management objectives and approved resource management plans. The National Park Service will identify areas where additional research by the academic community will aid in protection of the resources. The park will also seek to develop collaborative partnerships with other parks, government agencies and public and private organizations with paleontological resource management or research capabilities/expertise.

To protect paleontological resources from harm, theft, or destruction, Mojave will ensure that the nature and specific location of these resources remain confidential. Mojave will take all actions necessary to prevent unauthorized collection and removal of fossils. The sale of scientifically significant original paleontological specimens (which includes *all* vertebrate specimens) is prohibited in parks.

Geological Resources

Background

The geology of Mojave National Preserve is very

complex and diverse due to igneous and metamorphic activity and structural deformations associated with these activities. Erosional geologic processes have altered the landscape resulting in outcrops of rocks ranging from Precambrian to Recent ages.

The Mojave is characterized by isolated mountain ranges and ridges separated by alluvium-filled, irregular large valleys. Dividing Mojave National Preserve in half is the northeast trending Providence–Mid Hills–New York Mountain ranges. The principal valleys within the Preserve include Ivanpah Valley, Kelso/Cedar Wash, Lanfair Valley, Devils Playground, Piute Valley and the northern area of Fenner Valley. Ivanpah Valley and Kelso/ Cedar Wash line up in a northeasterly to southwesterly fashion, but drain in opposite directions because of an inconspicuous northwest trending divide near the town of Cima. Both Lanfair and Piute Valleys drain via Piute Wash into the Colorado River. The remaining valleys have self-contained drainage systems as represented by playa lakes such as Soda and Ivanpah.

Plan Actions

Mojave will inventory, preserve and protect geological resources as integral components of the natural systems, including both geologic features and geologic processes. The park will work with partners to assess the impacts of natural processes and human-related events on geologic resources; maintain and restore the integrity of existing geologic resources; integrate geologic resource management into park operations and planning; and interpret geologic resources for park visitors.

As a natural ecosystem, geologic processes will proceed in Mojave unimpeded. Geologic processes are the natural physical and chemical forces that act within natural systems, as well as upon human developments, across a broad spectrum of space and time. Such processes include, but are not limited to, erosion and sedimentation, karst processes, seismic and volcanic activity. Geologic processes will be addressed during planning and other management activities in an effort to reduce hazards that can threaten the safety of park visitors and staff and the long-term viability of park infrastructure.

Mojave will protect geologic features from the adverse effects of human activity, while allowing natural processes to continue. Geologic features include rocks, soils, mineral specimens, cave and karst systems, canyons, sand dunes, dramatic or unusual rock outcrops and formations, and fos-

silized plants and animals. In Mojave, recognition of valid existing mineral rights may affect our ability to prevent all adverse effects, unless they are deemed significant or funding is available to purchase the valid right.

Caves

Background

Caves, as defined by the Federal Cave Resources Protection Act, include any natural feature that a person can enter. They include talus caves, erosion-al caves, dissolution caves, lava tubes, and others. They do not include mine adits, shafts, or declines. The Mitchell Caverns area within the Preserve has significant cave resources. Many other areas within the Preserve are also known to contain caves as defined by the Federal Cave Resources Protection Act. One of these is the fairly well known lava tube in the Cima/Lava Beds area of Mojave. Other tubes may occur, but a comprehensive inventory has not been completed.

Most of the caves have not been inventoried, so little is known of the specific resources at the sites or the impacts on them. The presence of speleothems (limestone cave depositional features), cultural materials, and bat usage will likely be found in many of the caves.

The Mitchell Caverns Natural Preserve was established in 1954 to protect and interpret two caves connected by a constructed tunnel. The 97-acre Mitchell Caverns Natural Preserve is within the larger 5,890-acre Providence Mountains State Recreation Area, which is operated by the California Department of Parks and Recreation. The developed cave area consists of two small, but well decorated caves. A tunnel connected the two caves, known as El Pavika and Tecopa, in 1968. The caves contain areas of interesting speleothems, provide roost area for at least two species of bats (one of which is *Plecotis townsendii*), and may hold archeological material in the entrance areas. This cave has had a long history of recreational use and has been impacted by human activity.

Cave of the Winding Stair is a small but deep cave in the recreation area, open by permit to experienced vertical cavers. Several other small and unsurveyed caves exist with the local area. Very little is known about these caves and a comprehensive inventory is needed.

Plan Actions

Cave resources will be managed in accordance with the NPS *Management Policies* and specific guidance

in NPS Director's Order 77, the Federal Cave Resources Protection Act, and goals established by the Park Service Strategic Plan. In general, the park will manage caves in a manner that protects the natural conditions such as drainage patterns, air-flow, and plant and animal communities. Atmospheric, geologic, biological, ecological, and cultural resources will be addressed and managed in accordance with approved cave management plans.

The National Park Service will enhance its own knowledge of the resources present through comprehensive inventory and monitoring programs. It will also identify areas where additional research by the academic community will enhance the protection of the resources. The park will also seek to develop partnerships with academia, government agencies (in particular USGS), geological and paleontological societies, and others to enhance our conservation and management of the resources.

The National Park Service will continue to work cooperatively with the California Department of Parks and Recreation to assist with inventory, study and protection of significant cave resources that are found in the Providence Mountains.

In general, the NPS management direction is to avoid development of caves and to perpetuate natural conditions, while seeking to protect the resource. Potentially harmful developments or uses, including those that allow for general public entry, such as pathways, lighting, and elevator shafts, will not be allowed in, above, or adjacent to caves until it can be demonstrated that these will not significantly affect natural cave conditions, including sub-surface water movements. Developments already in place above caves will be removed if they are significantly altering natural conditions. Where significant cave resources exist, a cave management program should be developed which may include the following elements, depending on the situation:

- interpretive program
- visitor safety
- cave protection guidelines
- cave restoration program
- trail and lighting system maintenance
- cave zoning classification system
- safety and health guidelines
- cave geographic information system
- inventory system and guidelines

Biological Resources

Background

The wildlife and vegetative resources of Mojave National Preserve reflect the mingling of three major North American deserts: the Great Basin, the Mojave, and the Sonoran deserts. Vegetation consists primarily of species common to the Mojave Desert, but the Preserve also contains floral species of the Great Basin, Sonoran, and even some elements of the California coastal zone. Mojave National Preserve was established to preserve an ecologically diverse, yet fragile desert ecosystem, comprised of scenic, geologic and wildlife values unique not only to the Mojave, but the Great Basin and Sonoran desert environs as well. This transition zone, ranging from nine hundred to nearly eight thousand feet in elevation, embraces a plethora of landforms: cinder cones, sand dunes, dry lake beds, alluvial fans, mountain ranges, table-top mesas, large desert bajadas (alluvial fans) and valleys. This harsh Mojave desert landscape provides refugium for over one thousand plant and animal species, including threatened and endangered species.

Plan Actions

Management emphasis at Mojave will be on minimizing human impacts on native ecosystems and the dynamics of naturally functioning populations. Native ecosystems occur as a result of natural processes that have occurred, are now occurring, or may occur in the future. Any species that have moved onto park lands directly or indirectly as the result of human activities are not considered native.

Flora

Background

The Preserve consists primarily of vegetative attributes of the Mojave Desert but contains floral species of the Great Basin, Sonoran and even some elements of the California Chaparral Zone.

Many plant species are distributed only within its boundaries; while other areas such as the New York Mountains contain species of manzanita, California lilac, oak, and silk tassel, which are normally associated with coastal California. The Mid Hills have significant stands of Great Basin sagebrush and Utah juniper. The strongest association however, is with the Sonoran Desert, whose northernmost range is often recognized to intermingle with the southern border of the park. Sonoran plant species such as pancake prickly pear and smoke tree are found extending a dozen or more miles into the southeast portion of Mojave National Preserve.

Community types common elsewhere in the desert and also present within the Preserve are the playas, saltbush, creosote-covered flats and alluvial fans, and Joshua tree woodlands. There are also many important unique or rare habitats within the Mojave. The Preserve is unusual in the complexity and density of the Joshua tree community, which is represented on Cima Dome. The quality and sheer vastness of the Joshua tree forest on Cima Dome is unparalleled anywhere in the world. There are seven different types of wash plant species associations including catclaw acacia, smoke trees, and desert willows. Higher elevations support grassland, sagebrush, blackbrush, pinyon-juniper woodlands as well as unique remnant habitats containing small white fir forests, and pinyon-junipers with oak. The Piute Creek desert oasis also supports a very fragile and limited community. A total of 803 species of plants representing 85 plant families have been identified in the Preserve (Thomas, 1999).

Plan Actions

Mojave National Preserve is considered a unique floristic area, with many plant species found only within its boundaries. Mojave will seek to perpetuate native plant life (such as vascular plants, ferns, mosses, algae, fungi, and bacteria) as critical components of natural desert ecosystems. Mojave will seek to develop a complete inventory of all floristic components and establish monitoring programs to serve as early warning systems for health of the system.

Plants and plant communities will be manipulated only when necessary to achieve approved management objectives. To the maximum extent possible, plantings will use seeds, cuttings, or transplants representing species and gene pools native to the ecological portion of the park in which the restoration project is occurring. In some isolated cases, plants that are historically appropriate for the period or event commemorated may be used. Use of exotic plant species is restricted to situations that conform to the exotic species policy. Plants and plant communities may be manipulated to maintain habitat for threatened or endangered species, but only native plants may be used if additional plantings are done, and manipulation of existing plants will be carried out in a manner designed to restore or enhance the natural functioning of the plant and animal community of which the endangered species is a natural part.

Use of non-natural plantings [exotic plants] may be permitted under the following conditions:

- In localized, specific areas, screen plantings may be used to protect against the undesirable impacts of adjacent land uses, provided that the plantings do not result in the invasion of exotic species.
- Where necessary to preserve and protect the presentation of significant cultural resources and landscapes, trees and other plants, plant communities, and landscapes will generally be managed to reflect the historic designed landscape or the scene that prevailed during the historic period.
- Where needed in developed areas, plantings would use native or historic species and materials to the maximum extent possible. Certain native species may be fostered for aesthetic, interpretive, or educational purposes.

Fauna

Background

In its entirety, the California desert contains no finer grouping of different wildlife habitats than in Mojave National Preserve, both from the standpoint of total number of species and the total number of animals.

The intermingling of the three desert environments has produced approximately 35 wildlife habitat types. The diverse habitats support about 300 species of wildlife. The literature documents 36 species of reptiles, 206 species of birds and 47 species of mammals. A few of the most notable species include the gila monster, desert tortoise, Mohave tui chub, Mojave fringe-toed lizard, regal ring-necked snake, and desert striped whipsnake. Significant avian fauna include the prairie falcon, Bendire's thrasher, California thrasher, gray vireo, golden eagle, Lucy's warbler, mourning dove and Gambel's quail. The Preserve has one of the more significant bat faunas of the California desert. There are also populations of rock squirrels in pinyon-juniper woodland, a relict population of dusky-footed woodrats, mule deer, porcupines, mountain lions, and desert bighorn sheep.

A large portion of the Preserve is critical desert tortoise habitat. Some of the highest densities of tortoise are found in the Ivanpah Valley in the north end of the Preserve.

Plan Actions

The NPS management goal will be to preserve and protect native wildlife and their natural habitat in a manner that will result in self-sustaining populations

of native species. The NPS policy is to maintain all components and processes of naturally evolving park ecosystems, including the natural abundance, diversity and ecological integrity of all native species. The park will not promote actions that will attempt to solely preserve or enhance populations of individual species (except threatened, endangered, and sensitive species). Intervention in natural processes will only be undertaken: (1) when directed by Congress, (2) in emergencies when human life and property are at stake, (3) to restore native ecosystem functioning that has been disrupted by past or ongoing human activities, or (4) when directed by an approved recovery plan or conservation strategy.

Sensitive Species

Background

Within the Mojave National Preserve are confirmed populations or potentially viable habitat for 3 federally endangered, 1 federally threatened, 6 state (California) endangered and 1 state threatened plants and animals.

Federally listed species known to inhabit the Mojave National Preserve are the desert tortoise (*Gopherus agassizii*) and the Mohave tui chub (*Gila bicolor mohavensis*). Final recovery plans exist for both of these species. The southwestern willow flycatcher (*Empidonax trailli extimus*) and least Bells vireo (*Vireo bellii pusillus*) are listed birds that could periodically inhabit riparian areas such as Piute Spring but have not been verified to occur in the Preserve.

California listed species known to occur in the Preserve are the desert tortoise, the Mohave tui chub, and the willow flycatcher (*Empidonax trailli*). The California (or western) yellow-billed cuckoo (*Coccyzus americanus occidentalis*), normally in need of broad riparian cover, may have some, but limited potential to appear in the Preserve.

There are no known federally listed or proposed plant species in the Preserve. Thorne's buckwheat (*Eriogonum ericifolium* var. *thornei*) is listed by the state of California as an endangered species. It is known from only two occurrences in the Preserve's New York Mountains. This buckwheat is found at elevations upward of 5,500 feet in pinyon and juniper woodland and prefers copper-rich gravel (*The Jepson Manual: Higher Plants of California*, James C. Hickman, ed.)

Plan Actions

The National Park Service will identify, inventory, monitor and promote the conservation of all federally listed or proposed threatened or endangered species and their critical habitats in ways that are consistent with the purposes of the Endangered Species Act. As necessary, the National Park Service will control visitor access to and use of critical habitats and might limit access to especially sensitive areas. Active management programs will be conducted as necessary to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystems on which they depend. Such programs will be undertaken only after appropriate consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

The National Park Service will also identify, inventory, monitor and promote the conservation of all state and locally listed threatened, endangered, rare, declining, sensitive, fully protected, or candidate species that are native to and present in the Preserve, as well as their critical habitats. Controlling access to critical habitats or conducting active management programs might be considered that would be similar to activities conducted to perpetuate the natural distribution and abundance of federally listed species. Plant and animal species considered rare or unique to Mojave National Preserve will be identified, their distribution mapped, and programs established to monitor their status. All management actions for protection and perpetuation of special status species will be determined through the Preserve's resource management plan.

The National Park Service will develop collaborative partnerships with federal, state, and local agencies that manage lands adjacent to Mojave National Preserve, and with academic institutions with research capabilities in desert ecology or ecosystem management to help achieve these goals.

Desert Tortoise

Background

The range of the desert tortoise includes the Mojave and Sonoran deserts in southern California, Arizona, southern Nevada, the southwestern tip of Utah, and Sonora and northern Sinaloa, Mexico.

The Mojave population of the desert tortoise primarily occupies valleys and bajadas characterized by scattered shrubs. The soils range from sand to sandy-gravel, though caliche soils, desert pavement,

and rocky, boulder terrain are occasionally used (FWS 1994). Desert tortoises spend a large portion of the year underground to avoid extreme temperatures and, for younger tortoises, to avoid a variety of predators, such as coyotes, foxes, raptors, and ravens (BLM 1996). Tortoises generally are active during spring, early summer, and autumn when annual plants are most common and daily temperatures are tolerable. Additional activity occasionally occurs during warm weather in winter months and after summer rainstorms (BLM 1996).

Desert tortoise habitat has been destroyed, degraded, and fragmented as a result of urbanization, agricultural development, livestock grazing, mining and roads. The removal of tortoises by humans for pets or for use as food or folk medicine is also a major factor in the decline of the desert tortoise population (FWS 1994). A respiratory disease is an additional cause of desert tortoise mortality and population decline, particularly in the western Mojave Desert (FWS 1994).

The Mojave population of the desert tortoise (an administrative designation for animals living north and west of the Colorado River) is listed as a threatened species by the federal government since 1990 and the State of California. Critical habitat for this species was designated in 1994 (FWS 1994).

In June 1994, the U.S. Fish and Wildlife Service released the *Desert Tortoise (Mojave Population) Recovery Plan*, which presented recommended prescriptions for population recovery and included maps of the tortoise's critical habitat and where recovery actions are recommended.

There are two areas of designated critical habitat in the Preserve. The northern area includes Ivanpah Valley, south of Nipton Road, including the areas north, west and south of Cima Dome, extending up to Interstate 15. This area totals approximately 492,360 acres (769 square miles) and is within the Eastern Mojave Recovery Unit. The second area of the park that contains desert tortoise critical habitat is the Fenner/Clipper Valley. This area contains 280,103 acres (438 square miles) of federal land. This habitat is also within the Eastern Mojave Recovery Unit. Private, state and local agency lands were not considered in this general management plan recovery effort and are not considered part of the recovery effort unless the land is subsequently acquired by the adjacent managing agency. These two areas of critical habitat combined total about 772,463 acres (48%) of the Preserve designated as critical

habitat for this species (FWS 1994). Critical habitat also extends north of the Preserve onto BLM lands in the Shadow Valley area up to the southern slope of the Kingston Range and on adjoining BLM lands north of Nipton Road up to Ivanpah Dry Lake. There are also large areas of critical habitat to the south and east of the Fenner/Clipper valley area in California and Nevada.

The recovery plan provides five criteria for delisting, which are:

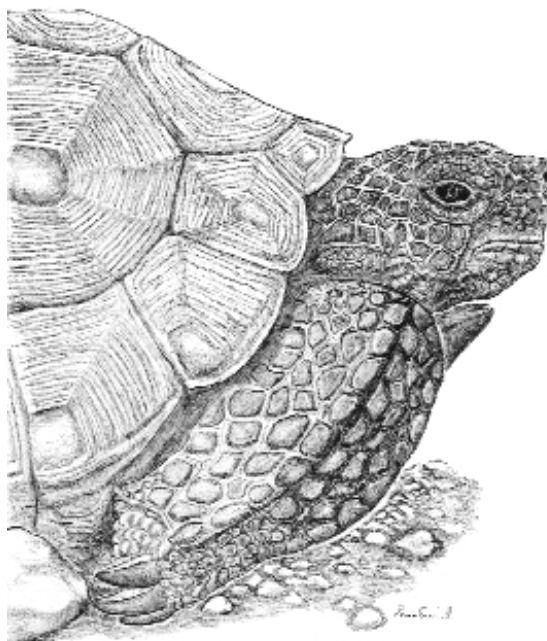
1. As determined by a scientifically credible monitoring plan, an upward or stationary trend within a recovery unit for at least 25 years;
2. At least one protected area (called Desert Wildlife Management Area by the Recovery Plan) with reserve level management of 1,000 square miles or more, except under unusual circumstances;
3. A population lambda (discrete growth rate) of at least 1.0 in each protected area;
4. Regulatory mechanisms and land management commitments are adequate and in place to ensure long-term habitat protection; and
5. The population is likely to remain stable or increase in the future.

Plan Actions

The management goal of this plan is the full recovery and delisting of the desert tortoise following recovery of the Mojave population. NPS manages for multiple species and protection of habitats for all native species. Desert tortoise management is directly linked with the management of grazing, burros, hunting, and camping (see those discussions for details).

As part of this desert tortoise recovery proposal, the NPS recommends that the U.S. Fish and Wildlife Service modify existing critical habitat boundaries to coincide with the category I desert tortoise habitat as mapped by tortoise biologists. Category I habitat is an older BLM classification of tortoise habitat. Category I was the best quality habitat identified by tortoise biologists during their surveys in the 1970s. Critical habitat was designated in the Preserve to coincide with the category I habitat, except for Cima Dome, which was not classified, and the area south of Kelso Depot, which was BLM category II. The lands in Mojave above 4,000 feet on Cima Dome were not classified by BLM biologists as category I desert tortoise habitat. We believe that considering them as part of the critical habitat acreage

for recovery purposes is misleading since it is marginal tortoise habitat. Any tortoises in this area will still be fully protected because of the wilderness designation and other protective measures the park proposes to put in effect.



In order to ensure the long-term protection of the desert tortoise in the park, Mojave will implement or continue the following measures to protect the desert tortoise:

Management policies already in effect:

- Vehicles are permitted only on existing roads, camping and parking areas. All vehicles must be street legal and licensed. No offroad or wash driving is allowed anywhere in the Preserve.
- No competitive motorized events are permitted. Organized events that do not involve timed races might be acceptable on existing roads, outside desert tortoise active periods, with appropriate restrictions and subject to other NPS statutes and regulations.
- No existing or new landfills are allowed anywhere in park units under NPS regulations. The National Park Service is currently closing and cleaning up old, informal trash dumps. The National Park Service enforces regulations prohibiting dumping and littering.
- The National Park Service aggressively manages trash and litter to avoid subsidizing ravens. Raven proof trash containers are being installed throughout Mojave.

- No agricultural clearing or commercial vegetation harvest is permitted on park lands.
- No surface disturbance is permitted on park lands, unless it is balanced with appropriate restoration or acquisition of replacement lands for mitigation.
- The National Park Service imposes strict limits on research in the desert tortoise critical habitat that might adversely affect the desert tortoise.
- The National Park Service closely monitors permit actions and requires special stipulations to ensure desert tortoises are protected.
- The National Park Service has removed over 3,000 burros from the Preserve since 1997. A management goal of zero feral burros will remain in effect and removals will continue until the goal is reached.
- Mojave enforces NPS regulations (36 CFR 2.4(a)(2)(ii)) prohibiting plinking (random target shooting).
- NPS regulations require dogs to be on a leash (or under physical or voice control of owner for ensuring that their pets do not harass wildlife if used for hunting).
- No collecting of any natural or cultural resources, including desert tortoise, is permitted under NPS regulations, unless done under a research collection permit.
- In order to prevent the spread of disease from captive tortoises, the National Park Service prohibits the release of captive desert tortoises in accordance with 36 CFR 2.1. The park would work with other federal and state agencies to develop a cooperative program where residents can drop off unwanted and injured desert tortoises, and can adopt healthy, previously captive desert tortoises.

Additional NPS management actions to be taken:

- In high desert tortoise use areas, during the active season, the park will undertake additional temporary signing and staffing of heavily used entrances on busy weekends to raise visitor awareness of tortoise presence. If necessary, speed limits may be temporarily adjusted.
- The National Park Service will support and participate in an interagency regional study of raven predation in order to determine the appropriate management actions.
- No new roads will be built in the desert tortoise critical habitat. Duplicate roads and those that

provide access to range developments, active mines or other development sites will be closed and restored when no longer needed for that function.

- Congressional wilderness designation in 1994 resulted in the permanent closure of approximately 147 miles of unmaintained backcountry dirt roads in designated critical habitat. During the wilderness/backcountry management plan development over the next two years the NPS will inventory and evaluate all remaining open dirt roads in desert tortoise critical habitat and determine duplicate or unneeded routes. The goal will be to permanently close up to an additional 100 miles of roads.
- The park will strive to eliminate unnecessary rights-of-way (ROWs) and easements and will require minimum maintenance in order to prevent increased vehicle traffic. Holders of ROWs and easements may be required to install desert tortoise barrier fencing through the desert tortoise critical habitat if traffic levels suggest a problem and fencing is identified as enhancing protection of the tortoise. Maintenance activities on rights-of-way will be allowed only after the holder conducts an adequate survey of tortoise burrows along the route and complies with all stipulations from the USFWS biological opinion on this plan.
- The park will establish an active restoration program for disturbed areas after appropriate site-specific historical review and compliance.
- The National Park Service will make lands within the desert tortoise critical habitat a high priority for acquisition.
- The National Park Service will develop extensive educational materials on the life history, threats and recovery efforts of the desert tortoise for use in schools, museums, clubs, published media, site bulletins, and displays in the park information and visitor centers.
- The National Park Service will adopt minimum-impact fire suppression techniques in the desert tortoise critical habitat, followed immediately by restoration of disturbed areas.
- The National Park Service will encourage and support research on the impacts of fire on the desert tortoise.
- The park will inventory and eliminate hazards to the desert tortoise from abandoned mining activities or facilities (e.g., install devices to exclude the tortoise from mine shafts).

- The park will modify existing water developments (mostly small game guzzlers) to prevent desert tortoise from gaining access and to ensure they are able to escape from them.

Recommended Cooperative Interagency Management Actions:

- The National Park Service will support the proposed cooperative interagency desert tortoise population inventory and monitoring effort using protocols and methods adopted by the interagency Desert Managers Group. A coordinator was hired by the U.S. Fish and Wildlife Service to oversee this effort and Mojave has hired a wildlife biologist to coordinate our monitoring and research. The park will inventory and monitor desert tortoise populations throughout the Preserve in coordination with the interagency, rangewide efforts.
- The National Park Service will work with the California Department of Fish and Game to limit hunting in Mojave to big game and upland game bird species during their normal state seasons and cottontails and jackrabbits from September through January. This action, combined with the existing policy on no target shooting, will eliminate the discharge of firearms during the active tortoise period in the spring.
- The National Park Service will work with the county to find a suitable location outside the Preserve to relocate the Baker waste transfer station. The National Park Service will also encourage and provide support for the relocation of the open sewage lagoons so as to eliminate odors at the Preserve entrance and to reduce raven subsidizing.
- The National Park Service recommends that Caltrans, and communities of Baker, Nipton and Ludlow, and the County of San Bernardino, adopt and enforce appropriate steps to eliminate raven access to trash and food subsidies in areas within their immediate control. The National Park Service also recommends that these entities work with the National Park Service to develop and install public education materials on desert tortoise life history and threats at all rest stops along Interstates 15 and 40, and at other heavily used public use areas throughout the desert.
- The National Park Service recommends that the U.S. Fish and Wildlife Service develop and implement a coordinated interagency program of raven control and reduction in areas where raven

predation on juvenile tortoises exceeds natural levels. The raven is protected under federal law as a migratory bird and USFWS is the agency responsible for their management. Also, management of raven populations must be undertaken on a broad scale across many jurisdictions.

- The National Park Service recommends that the California Department of Transportation fund and install desert tortoise barrier fencing material on their existing fences along 25 miles of Interstate 15 and 39 miles of Interstate 40 that bisect desert tortoise critical habitat. These major highways are already significant habitat intrusions and receive substantial amounts of traffic. They also have numerous existing culverts to provide occasional tortoise passage.
- Mojave does not support the concept of installing new desert tortoise barrier fencing on paved roads in the Preserve. Mojave has already undertaken measures (entrance signs and information kiosks) to increase awareness of travelers of potential tortoise and other wildlife encounters. Fencing will lead to further habitat fragmentation and will conflict with our goal of eliminating fencing in the Preserve as grazing permits are retired. Other measures have been identified above that will be implemented seasonally to heighten awareness and slow traffic. However, the park will consider allowing barrier fencing along sections of the Kelso-Cima road if installed by Union Pacific as a construction mitigation measure. The fence will be placed out of visual site so as to not increase the visibility of tortoises walking along the fence. The fence will be left in place for a period of five years after construction and the park will undertake research to compare the fenced portion of this road with a similar unfenced portion to determine the advantages and disadvantages to tortoise and other animals.
- Mojave will work with the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the California Department of Fish and Game, and the San Bernardino County to develop road maintenance standards that minimize impacts on desert tortoise. Berms and roadside vegetation are two issues that need standards to be developed.

If a development project is proposed on federal land within the desert tortoise critical habitat (e.g. a right-of way, mining, range development) and will disturb or otherwise modify the native plant community or ground surface, the developer will be

required to purchase equivalent habitat for the desert tortoise's preservation in accordance with the compensation formula established by the Desert Tortoise Management Oversight Group. Similar requirements are enforced by U.S. Fish and Wildlife Service (USFWS) on private lands. Some activities might be required to provide for tortoise monitoring during the project. The National Park Service will apply stipulations as appropriate, for all activities permitted in areas where potential encounters with desert tortoise may occur. Mojave will continually evaluate ongoing research and consult with USFWS to modify these stipulations to reflect current research recommendations.

Mohave tui chub

Background

The Mohave tui chub (*Gila bicolor mohavensis*) is in the minnow family and can reach over 10 inches in length. The Mohave tui chub was listed as an endangered species in 1970 by the U.S. Fish and Wildlife Service. The Mohave tui chub is the only fish native to the Mojave River basin in California. The arroyo chub (*Gila orcutti*) was introduced into the Mojave River system in the 1930s. This exotic chub successfully hybridized with the Mohave tui chub, and by 1970 the latter fish species was believed to have been eliminated by this process of introgression. A small population of genetically pure Mohave tui chub was found at a small pond (6 feet deep and 9 feet in diameter) at Soda Springs on the western bank of the dry Soda Lake (FWS 1984). Since its rediscovery, populations have been successfully introduced to constructed ponds at Soda Lake, Camp Cady, and China Lake Naval Air Weapons Station. The total estimated population at these four areas is between 10,000 and 20,000 fish (Mohave tui chub recovery team meeting, November 1996).

The Mohave tui chub is morphologically similar to the Owens tui chub (*G. b. Snyderi*) and the Lahontan tui chub (*G. b. obesa*) (FWS 1984). A genetic study, completed in September 1997, found that the Mohave tui chub is a distinct subspecies (May et al. 1997).

Plan Actions

A population of the endangered Mohave tui chub (*Gila bicolor mohavensis*) is maintained in small artificial ponds at Soda Springs. A final recovery plan exists for this species. Mojave will develop a cooperative agreement between the National Park Service, California Department of Fish and Game (CDF&G), U.S. Fish and Wildlife Service and

California State University to identify management objectives and strategies, consistent with the recovery plan, for maintaining the Mohave tui chub population (such as cattail and other aquatic plant removal and dredging of the pond). Mojave National Preserve will also pursue funding to provide for continued maintenance of the ponds and monitoring of the population.



Desert Bighorn Sheep

Background

Native populations of Nelson's bighorn sheep (*Ovis canadensis nelsonii*) are found in most of the mountainous terrain of the park, with population estimates as of 1994 at between 400 and 675 or more animals (Torres, S. G. et al. 1994). The population is listed as "fully protected" by the state, primarily due to the fragmentation of habitat throughout its range. It is not a federally listed species. Mojave National Preserve provides substantial protected habitat for desert bighorn sheep and is also one of the few places in California where bighorn sheep hunting is allowed. Limited hunting of bighorn sheep began in 1987 (BLM 1988). A limited number of permits to hunt bighorn sheep are issued each year by CDF&G through a lottery system. (See Table 1: Bighorn Sheep Populations in or near Mojave National Preserve).

Plan Actions

The park management goal is to inventory, monitor, and protect a self-sustaining population of bighorn, while allowing some hunting as mandated by Congress. Research will be encouraged and supported to address the following management issues:

- To determine the need for artificial water guzzlers and predator control.
- To determine the impact that rock-climbing has on sheep lambing in the Clark Mountains.
- To determine potential effects of jet noise from the proposed development of a major regional airport only miles from the park's northern boundary.

Sensitive Habitats

Background

Chaparral Habitat: Several canyons, located within the New York Mountains, contains a unique assemblage of plants and an interesting blending of plant communities not found elsewhere within the Preserve. Besides the small stand white fir trees (see section below), an “enriched” pinyon-juniper-oak woodland, or interior chaparral community, is found in Caruthers, Keystone, and Live Oak Canyons. Manzanita (*Arctostaphylos pungens*), oaks (*Quercus chrysolepis* and *Q. turbinella*), silktassel (*Garrya flavesces*), single-leaved ash (*Fraxinus anomala*) western service-berry (*Amelanchier utahensis*), holly-leaved redberry (*Rhamnus ilicifolia*), yerba santa (*Eriodictyon angustifolium*), and desert olive (*Forestiera neomexicana*) are all species that occur in the chaparral habitats of California and Arizona. Chaparral is typically a fire tolerant community, supporting intense fire due to volatile compounds in the plants, but recovering over time to a similar community. Calicolous scrub, a community that grows only highly calcic soils, is also found within the New York Mountains.

White Fir Populations: Small populations of Rocky Mountain white fir (*Abies concolor concolor*), relict populations from the late Pleistocene-early Holocene period can be found in the upper reaches of the New York Mountains and on Clark Mountain. These pockets of white fir trees probably exist due to favorable conditions at the microsite level, with humidities in these small areas sufficient to favor sufficiently low evapotranspiration rates (Latting and Rowlands 1995). These north-facing canyons are wetter and cooler than the surrounding desert and shelter these relict stands.

Joshua Tree Woodlands: The most obvious feature of Cima Dome, next to its unique geological form, is the Joshua tree (*Yucca brevifolia jaegeriana*). The Joshua tree woodland covering the dome and surrounding areas is considered to be the largest and most dense stand within the tree's range, covering in excess of 150 square miles and probably containing more than a million trees. Although methods of aging of the trees are still subject to some disagreement, some of the trees with base diameters in excess of three feet and heights of 30 feet or more, may be 500–1,000 years old. The Joshua tree forest on the Cima Dome has not been surveyed and mapped for age distribution, nor are there any quantitative data to indicate the status of new seedling recruitment into the population. Joshua

trees are susceptible to wildfire, and above ground portions of the plants are often killed.

Plan Actions

Mojave will inventory, map and monitor sensitive, unusual and limited distribution habitats. The National Park Service will also encourage and support research to assist in determining threats and appropriate management strategies. The park will encourage and support visitor use and education efforts in order to promote understanding of them.

White Fir: Fire planning will address efforts to protect white fir stands from wildfire, since they are not tolerant to extremes in heat and have a thin outer bark. Its seedlings need shade to germinate and establish, so if a stand were destroyed by fire, conditions for new tree growth will not be favorable.

Joshua Tree Woodlands: Park management goals will include:

- Inventory and monitor the extent, density, and age distribution of the Joshua tree woodland.
- Research the long-term effects of grazing and, possibly, how the removal of cattle would effect population dynamics of the Yucca species.
- Investigate fire management strategies that consider short and long-term fire effects on components of this community and determine appropriate strategies.

Other Unusual Plant Communities

Background

Calicolous Scrub: Vegetation associated with limestone and dolomitic outcrops occurring in the Providence, New York, and Clark mountains. Characterized by the occurrence of many uncommon plants.

Sagebrush Scrub: Great Basin sagebrush (*Artemisia tridentata tridentata*) occurs in the Round and Gold Valleys in the Mid Hills area. This community is typical of the Great Basin desert to the north and is one example of the intersection of the three great southwestern deserts.

Desert Grassland: A large expanse of desert grassland containing about 20 species of perennial grasses is found in eastern Lanfair Valley.

Shadscale Scrub: A stand of *Atriplex confertifolia* occurs at Valley Wells and is characteristic of alkaline soils of the Great Basin Desert.

Kelso Dunes: The Kelso Dunes, reaching over 600 feet above the surrounding terrain, are the largest accumulation of sand within the Devil's Playground area. The Kelso Dunes are one of six "booming" dune systems in the entire world. These are dunes that emit audible booming, humming, or buzzing sounds as they shift. Sand from the Kelso Dunes originated in Afton Canyon fan at the southern end of Soda Lake (Lancaster). They also support psammophytic, or sand-growing plant communities and a diverse, but largely unseen contingent of diverse and sometimes rare invertebrates. Dune invertebrates include arthropods such as scorpions, roaches and beetles. Scorpions prey on smaller insects. Roaches and beetles depend on wind-blown organic material for both food and for nursery sites.

Mojave Yucca: The slopes of the Hackberry, Woods, and Providence mountains support stands of very tall (up to 25 feet) *Yucca schidigera*.

Succulents (Cactus Gardens): Many slopes of the Preserve mountains support extensive stands of succulent shrubs, including barrel, silver cholla, buckhorn cholla, hedgehog, Mojave mound, beavertail, and prickly pear cacti.

Riparian: Piute Creek, the Preserve's only perennial stream, and the ephemeral Bull Canyon's stream in the Granite Mountains supports a lush stand of cottonwoods, willows, and other riparian vegetation. Seeps and springs are relatively scarce and sometimes support riparian species. Studies have shown riparian areas, including large washes, to be extremely important for ecosystem biodiversity and sustainability.

Mesquite: Mesquite thickets, which indicate a high water table, occur in substantial numbers near Crucero, south of Soda Lake. Illegal offroad vehicle usage from the adjacent BLM Rasor OHV area poses threats to this community.

Smoke Tree: The smoketree (*Dalea spinosa*) is a species reaching its northern distribution in or near the Preserve. This Sonoran desert plant occurs in washes primarily along interstate 40, although it is also found in the Mojave River drainage west of the Preserve. A large assemblage of smoketree in Piute Valley was recognized by the Bureau of Land Management as a Sensitive Unusual Plant Assemblage.

Plan Actions

Plant communities, identified as "unusual," meaning they may be particularly sensitive to disturbance,

or are limited in distribution, will be inventoried, monitored and studied to determine appropriate management actions.

Introduced Species

Background

Exotic (nonnative) species can include both plants and animals. They are generally defined as those species that occur in a given place as a result of direct or indirect, deliberate or accidental actions by humans. The exotic species introduced because of such human action would not have evolved with the species native to the place in question and therefore would not be a natural component of the ecological system characteristic of that place. There are 60 known nonnative plant species that have been identified in the Preserve. Examples of exotic wildlife species in the Preserve include burros and chukar, and plants like tamarisk, goat-head thorns, halogeton, cheat grass and Russian thistle.

Plan Actions

Nonnative plants and animals will not be used/introduced, except at historic sites where treatment plans (using the "Secretary of the Interior's Standards for Historic Properties") have been approved by the superintendent. The management of populations of exotic plant and animal species, up to and including eradication, will be undertaken in accordance with NPS *Management Policies* wherever such invasive species threaten park resources or public health and when control was prudent and feasible.

Burros

Background

Before the passage of the California Desert Protection Act, the Bureau of Land Management (BLM) administered herd management areas (HMAs) in what is now the Mojave National Preserve. Their prescribed number of burros for what is now the main unit of the Preserve was 130 animals. On February 28, 1995, the superintendents of Death Valley National Park and Mojave National Preserve signed an agreement with the BLM to an interim management policy for burros on lands formerly managed by the BLM.

A survey conducted in September 1996 estimated there were 1,415 burros in the surveyed portion of Mojave (National Park Service, 1997). This figure was produced from mark-recapture estimates derived from over 200 hours of helicopter aerial surveys. The areas chosen for the survey included

approximately 985,000 acres of the 1.6 million-acre park. Funds limited the amount of land that could be surveyed; therefore, the study targeted previous BLM Herd Management Areas.

Since the survey was conducted, burro distribution has been discovered to be more extensive than originally determined. The number of burros estimated to exist within the Preserve outside of the original study area, based on casual observations by the park's field biologist, is at least a few hundred burros. Although an exact number cannot be determined unless a new survey is conducted, for planning purposes, a revised population estimate of 1,650 animals is believed to have existed in Mojave at the time of the 1996 survey.

To plan the burro removal program in Mojave, annual population increases due to reproduction are calculated. Empirical evidence indicates that burro herd sizes can increase at rates ranging from 11 to 29 percent per year (Douglas and Hurst, 1993; Morgart and Ohmart, 1976; Ruffner et. al., 1977; Woodward, 1976). Experience at Mojave suggests that a reproduction rate at the upper end of this spectrum is most representative of Mojave burro herds, as indicated by:

- Results of the 1996 Mojave survey showed that "when the reproductive rate is looked at as a percentage of the adult population accompanied by colts, the values...averaged 25.8%" (National Park Service, 1997).
- Of the 520 burros captured in Mojave during calendar year 1998, approximately 50% were female. Of those females, nearly every animal was either pregnant or accompanied by a colt¹.

Taking into account these indicators of high reproductive rates, it is therefore reasonable to assume a herd reproduction rate of 25% for estimating the size of the Mojave burro population during the multiyear capture and removal program.

Mojave received Natural Resource Preservation Program (NRPP) project dollars to remove burros from 1999–2001.

In September 1997, Mojave began removing burros by live trapping them in corrals. In one month 600 burros were captured and removed. Between June and October 1998, 520 burros were captured and

removed; and in 1999, Mojave captured and removed 650 animals; for a total of 1,770 burros removed from Mojave during the two and one-half year period. Assuming a 25% average annual population growth, plus these three years of captures, there were approximately 915 burros in Mojave at the beginning of calendar year 2000 (see table 2).

Plan Actions

Feral burros are an invasive, nonnative species that damage native habitat and compete with desert bighorn, desert tortoise and other native species for limited forage. The proposed management goal at Mojave is to remove all burros from inside the boundary and implement actions, to the extent practicable, to ensure that they do not reenter.

Thirty days after the "Record of Decision" was signed, the National Park Service's multi-phased plan for the removal of the remainder of Mojave's burros became effective. Burros will be removed in a multi-phased approach similar to that used successfully in Death Valley National Monument (NPS, 1982) as described below.

Phase One. During phase one, up to two years will be allowed for the live capture and removal of as many burros as possible. The methods and procedures for capture, transport, and placement are the same as those used in the existing management program. They are summarized below and presented in detail in the *Action Plan for the Removal of Feral Burros* (NPS, 1998c). The capture techniques will include water trapping, horseback wrangling, helicopter-assisted roping and trapping, and net gunning. The captured burros will be placed through the BLM adoption program, animal protection groups, or direct or indirect placement programs of the National Park Service.

Four **capture methods** will be used or considered for Mojave's burro program: 1) water trapping, 2) horseback wrangling, 3) helicopter-assisted roping and trapping, and 4) net gunning. A phased approach will be employed in implementing these methods. Water trapping is considered the easiest and least expensive means of capture, with horseback wrangling and helicopter methods becoming increasingly more difficult and expensive. The more difficult capture methods, however, are also more effective at capturing elusive, remote, and solitary animals. It is anticipated that as water trapping

¹ This observation implies an even higher reproductive rate than the 1996 survey suggests, but these numbers are not from a representative sample, so generalizations cannot be made about the entire population of Mojave burros.

becomes less effective, horseback wrangling and helicopter methods will become the primary focus of capture operations.

The four capture methods are described in detail below. The number of burros that are removed with each method is subject to modification as the program progresses and various capture methods prove more or less effective than anticipated.

1. **Water Trapping.** Burros are habituated to drinking at certain cattle corrals and developed waters in the desert. During water trapping, the animals enter a corral through a one-way gate known as a "finger trap" or "trigger" to obtain water, and cannot exit. Only existing corrals or previously developed water sources are used. Temporary corrals would be set up around those developed water sources planned for trapping where no corral exists. Temporary corrals are made of 6-rail livestock panels. No trapping is or would be conducted at springs, wetlands, riparian areas, or other sensitive environments. All trapping locations are previously heavily impacted by livestock and feral burro use.

Traps are checked for animals every day during water trapping operations. Trapped animals are loaded on a trailer and hauled to a central holding corral, where they await shipment out of Mojave. Holding corrals, like the trapping corrals, are located on ground that is previously heavily disturbed by livestock use. Only existing corrals are used. Burros wait in the holding corral no more than five days before shipment out of the park. Whether in the trap or in the holding corral, burros are given constant access to water and are provided adequate feed.

Water trapping has been highly successful at Mojave, resulting in the capture of 1,841 burros during three separate trapping seasons. Experience in other locations suggests that water trapping is most effective in the summer, when the animals are more thirsty and more willing to enter a trap to get a drink, and when there are fewer natural water sources available. Based on the effectiveness of the water trapping program to date, however, Mojave is attempting to water trap burros on a year-round basis. If water trapping becomes ineffective in the spring, fall, or winter, trapping during these seasons will be halted. Additionally, it is anticipated that as the program progresses, even warm-season water trapping will become less

successful, because the burro herd will be reduced to only those animals that drink at natural sources.

2. **Horseback Wrangling.** As burro numbers are reduced, water trapping will become less effective. One alternative is horseback wrangling, where riders capture burros by driving them into corrals or by roping the animals and leading them into corrals. Efforts would be made to use existing corrals or set up temporary corrals (using six-rail livestock panels) in previously disturbed areas. Like water trapping, burros will be moved to a central holding corral where they await removal from the park. They will be held no more than five days, would have free access to water, and will receive regular food.

It is anticipated that horseback wrangling will be used throughout the life of the program to capture animals that cannot be water trapped and are not concentrated enough to warrant the expense of helicopter capture. Costs per animal capture are expected to increase over the life of the program as burros become harder to reach due to terrain factors and distance from roads.

3. **Helicopter-Assisted Roping and Trapping.** During helicopter-assisted trapping, a helicopter is used to locate burros and herd them into a funnel trap. Wranglers wait until the burros enter the mouth of the funnel trap and then close in behind the animals, herding them into the corral. During helicopter-assisted roping, a helicopter is used to herd the animals to a capture site where wranglers are waiting. The wranglers rope the animals and lead them to a corral. Like the other two methods, captured burros will be placed in a temporary holding corral where they would be cared for while awaiting removal from Mojave.

Helicopter-assisted roping and trapping will be employed to capture burros in those areas where water trapping and horseback wrangling are not feasible or effective, and where there is a high enough concentration of burros that helicopter methods will prove cost effective. Costs per animal capture are expected to increase over the life of the program as burro numbers are reduced. In FY2000, Mojave initiated helicopter-assisted roundups in the Lava Beds and Granite Mountains, resulting in the capture of over 513 burros by this technique.

4. **Net Gunning.** During net gunning, a net is fired onto the animal from an overhead helicopter. Animal handlers (either already on the ground or in the helicopter) then move the burro to a designated holding corral. Captured animals will be placed in a temporary holding corral where they are cared for while awaiting removal from Mojave. It is anticipated that only the most remote and elusive burros will be captured through net gunning. Net gunning will be used sparingly and only in those situations where no other option exists for burro capture. Costs per animal are expected to be extremely high.

Mojave currently utilizes three **placement sources** for captured burros. The market for burros in the United States is limited, and no single placement source is capable of absorbing all the burros that must be removed. Cost also factors into decisions on placement. The three placement sources are:

1. **The Fund for Animals' Black Beauty Ranch.**

The Black Beauty Ranch, located in East Texas and owned by the late Cleveland Amory's Fund for Animals, is a haven for unwanted animals. In a signed general agreement with the NPS, the Fund has agreed to accept up to 300 Mojave burros per year at the Black Beauty Ranch. Under the terms of the agreement, the Fund takes the animals free of charge. The NPS must finance shipping the animals to Texas, plus all necessary veterinarian check-ups and blood work. Mojave contracts for shipping and veterinarian services.

Upon arrival at the Black Beauty Ranch, the burros become the property of the Fund for Animals, and they are adopted to interested parties or live out their lives on the ranch. In 1998, 100 burros were successfully sent to the Black Beauty Ranch under this agreement. In 1999, 300 animals were placed there.

2. **Private Contractor.** In 1998, Mojave contracted with a private company to remove and market burros for the NPS. The company picked up the burros from the park, transported the animals to their facilities, and sold them to private entities. Their market included selling burros for pets, breeding, pack stock, and other recreational purposes. Under contract stipulations, no burros were sold for slaughter, and the company made available to the NPS records indicating where each burro was sold. The program with this company has been highly successful,

resulting in the placement of hundreds of burros. Mojave will continue to use this contract to place burros in the future.

3. **Bureau of Land Management Wild Horse and Burro Adoption Program.**

The BLM has a well-established adoption program for horses and burros removed from the wild. During 1997, Mojave placed 600 burros through the BLM program. Another 100 animals were placed with BLM in 1999. Due to a saturated market, fiscal considerations, and BLM's interpretation of the 1971 Wild and Free-Roaming Horse and Burro Act, BLM's ability to take burros from Mojave is limited, but this option will be used in the future where appropriate.

Burro herd migrations, size of the park, and uncertainties associated with the effectiveness of the various capture methods make predictions on the timing of burro capture very difficult. Generally, horseback wrangling and helicopter-assisted capture will be conducted during the warmer months when burro herds are concentrated around water sources. Water trapping, which is assumed to be more effective in the summer, will nevertheless be attempted year-round to test the efficacy of a four-season operation.

Predictions about **capture locations** are also difficult to make. Mojave is a large area with few geographic boundaries that can inhibit burro migration within the park. The 1996 survey (NPS, 1997) and burro monitoring over the last three years by park staff, suggest that burro herds are concentrated in the following general locations: Granite Mountains, Providence Mountains/Clipper Valley, Woods/Hackberry Mountains, New York Mountains, Ivanpah Mountains, Cima Dome, Cinder Cones, and Clark Mountain. The combined area of these locations totals over one million acres. Predicting burro herd locations within these general geographic areas is problematic. Decisions on general capture areas will be based on monitoring observations taken approximately two weeks prior to capture operations.

Decisions regarding specific trap and holding corral locations will be made immediately after the determination of the general capture locations. The specific number of livestock corrals in Mojave that could serve as potential traps or holding facilities is unknown, but may number in the dozens. Potential holding facilities exist within a few miles of almost all capture locations.

Phase Two. Upon signing of the "Record of Decision," the National Park Service will provide a maximum of six months during which animal protection groups may remove any remaining animals, at their expense, from areas of the Preserve where live trapping/capture techniques have achieved the maximum cost effective results. If the group's proposal is agreeable with the NPS, an agreement will be negotiated and signed between the National Park Service and the interested group(s). The National Park Service will provide oversight, logistics support, and the use of some equipment and corrals.

It is anticipated that most of the Mojave's burros will likely be captured and removed through phases one and two. If an agreement with an animal protection group is not reached within six months of the signing of the "Record of Decision," the NPS will immediately begin Phase three. Phases one and two must result in adequate removals each year to reduce the populations substantially in the area being targeted. If phase one proves unsuccessful in the first year, the NPS could move to phases two and three as needed to achieve the desired results. One area of the Preserve may remain in phase one, while other areas proceed to phases two and three as necessary.

Phase Three. In phase three, NPS staff or contractors will eliminate the remaining few animals in a humane manner to achieve a zero population. This action will occur only when desert tortoises are not active above ground. By timing operations in this manner, juvenile tortoises will not be subject to increased predation by ravens, which are likely to congregate near burro carcasses. Phase three will continue for an indefinite time. The park also maintains the option of implementing phase three if live captures do not succeed in reducing populations. As captures proceed, a particular area of the park could be placed in phase two or three separate from the rest of the park.

The NPS is aware of the burro's potential for rapid population growth (up to 25% per year). The above proposed removal strategy will result in a burro population that approaches zero within five years of its initiation in 1997.

A BLM burro Herd Management Area (HMA) lies adjacent to Clark Mountain, with no natural or constructed barriers to prevent burros from entering this satellite unit of the Preserve. No other BLM HMAs exist immediately adjacent to Mojave. In addition, the BLM proposes to retain cattle grazing surrounding the Clark Mountain area. Because of this situation, the National Park Service will:

- Fence the Clark Mountain unit of the Mojave National Preserve, following the Preserve boundary. To allow for deer and bighorn sheep ingress and egress, critical portions of the fence would be constructed similar to that proposed by Andrew, Lesicka, and Bleich (1997), which allows deer and bighorn sheep to pass, but not burros or cattle. This alternative could not be implemented until the existing cattle grazing permits within the park are retired.
- Work cooperatively with BLM and CDF&G on conducting joint gathers and aerial surveys.

Rocky Mountain Mule Deer

Background

The California Department of Fish and Game introduced the Rocky Mountain mule deer (*Odocoileus hemionus hemionus*) into the New York and Providence Mountains of the Preserve in February and March of 1948 from Arizona (Dasmann 1968). Nine bucks and 31 does were released. The first authorized hunt of this population was in 1955. The department estimates that about 25 deer are taken per year. The population has remained relatively stable since the first introduction.

Mule deer are native to the Mojave Desert and occur in nearby mountain ranges. Although the deer in Mojave were introduced by the California Department of Fish and Game, anecdotal information suggests that a resident population may have occurred in the pinyon-juniper and sagebrush habitat prior to these introductions. It is likely that these deer have interacted and bred with adjacent herds over the last 50 years and may now be genetically similar. DNA studies would help to resolve this apparent information discrepancy.

Plan Actions

No actions to remove this species are warranted until the genetics of the deer population are studied.

Chukar

Background

The chukar (*Alectoris graeca*), an upland game bird popular among hunters, was first introduced into California (from India) in 1932 (Mallette c.1970). Between 1932 and 1955, more than 52,000 birds were released by the California Department of Fish and Game (Mallette c.1970). The birds prefer rocky open hills and flats. Sightings have been reported from below sea level to above 12,000 feet in the White Mountains and Sierra Nevada. The animal is abundant in parts of the Preserve.

Plan Actions

In order to protect the native quail population and to maintain a native desert ecosystem, the NPS will encourage reductions in this population of exotic birds by seeking a higher bag limit, as compared to the native quail population. No new releases of these, or other exotic species, will be authorized.

Nonnative Plants

Background

There are 60 known nonnative plant species that have been identified in the Preserve. Tamarisk or salt cedar (*Tamarix ramosissima*), Russian thistle, and introduced annual grasses (from Europe and Asia) are some of the more pernicious exotics within the Mojave National Preserve. These species often out-compete native vegetation, subsequently eliminating or displacing natives and associated native animals. Annual plants such as introduced grasses and Russian thistle often cause an unnatural increase in the amount of dried material available as wildfire fuel.

Salt cedar, an introduced shrub or small tree 5 to 20 feet tall, is an opportunistic invader of moist areas. Both the Bureau of Land Management and the National Park Service have ongoing control programs that are attempting to manage this invasive plant. Continuing control is needed to prevent this weedy tree from outcompeting and eliminating native vegetation. A larger, less invasive relative, the athel (*T. Aphylla*), has been planted (typically as a windbreak or sand-break) in a number of locations in the Preserve (e.g., near Kelso Depot). This species does not spread easily and is not considered a threat. Some of these trees may be considered part of the historic landscape would be evaluated during planning efforts for those sites.

Russian thistle (commonly called tumbleweed) is common in many disturbed areas in Mojave National Preserve, such as at old mining sites and along roadsides. Introduced annual grasses such as *Bromus* and *Schismus* species are serious pests when mature (Hitchcock and Chase 1971). "The narrow, sharp-pointed minutely barbed florets (or fruits) with their long rough awns work into the eyes, nostrils, and mouths of stock, causing inflammation and offer serious injury" (Hitchcock and Chase 1971). The increase of these grasses throughout much of the arid west is believed to be an important contributing factor in the increase in desert wildfires, which were uncommon at one time.

Plan Actions

Tamarisk. Mojave will continue to identify and remove the invasive nonnative salt cedar tamarisk (*Tamarisk ramosissima*). Successful control of tamarisk has been demonstrated in numerous projects throughout the southwest. Only authorized herbicides will be used in tamarisk control efforts. Such herbicides are non-persistent, non-toxic to aquatic life and are used in accordance with accepted management practices and proper dosages. Any use of poisons or other chemical agents on federal lands within the Preserve, including use by the park or by permittees, requires review and permission under the NPS Integrated Pest Management program.

Athel tamarisk trees (*Tamarisk aphylla*), such as those planted along the Union Pacific railroad corridor for protection of the tracks from blowing sand, do not spread easily and are not considered a threat. Retention of athel tamarisk trees at Kelso Depot and Zzyzx as part of the historic landscape will be evaluated during planning efforts for those sites.

CULTURAL RESOURCES

Program Goals

The National Park Service will develop and implement a systematic, integrated cultural resource management program in accordance with the NPS *Management Policies* (2001) and *Director's Order 28*. This program will identify, inventory, monitor, and evaluate archeological sites, historic properties, cultural landscapes, and ethnographic resources; nominating significant resources to the National Register of Historic Places and will manage, protect, and preserve such listed properties in a way that will preserve their documented archeological, architectural, ethnographic, historic, or research values. The program will be developed through collaborative partnerships with government agencies and public and private organizations with cultural resource management expertise.



Mojave's resource management plan will address the requirements, projects, and funding to implement the cultural resource program. To support this program, the National Park Service will develop collaborative partnerships with government agencies, as well as public and private organizations with expertise in cultural resource management or research capabilities. These entities could include federal, state, and county agencies, academic institutions, local and regional cultural and historical associations, and Native American tribes affiliated with lands in the Preserve. As requested, the National Park Service will cooperate with owners of historic properties within the Preserve boundaries to ensure their preservation. To achieve cultural resource program objectives, under the authority of 36 CFR 1.5, the National Park Service might control or limit human activities in areas designated as culturally sensitive or threatened.

Baseline Data

The National Park Service will develop and implement a systematic applied cultural resource research program to ensure that (1) there will be adequate baseline information on location, condition, threats, and significance/integrity of resources; (2) interpretation and preservation treatment of resources will be accurate; and (3) appropriate means will be used to manage, protect, preserve, and interpret Native American heritage or other ethnographic resources. The research program will include the following studies:

- archeological studies, including a regionally based archeological research plan, an archeological overview and assessment, and archeological identification and evaluation studies
- ethnographic studies, including an ethnographic overview and assessment, a cultural sites inventory, and cultural affiliation studies
- historic resources studies (including possible separate studies of ranching, mining, transportation, and military use), historic structure reports, historic furnishings plans, an administrative history, and special history studies. A historic resources study is an illustrated narrative history and normally is accompanied by draft National Register forms together with requisite maps and photographs for all properties identified within the study as meeting National Register criteria, while the study itself identifies those which lack either sufficient age, or integrity, or significance, and thus have been

evaluated as not qualifying for the National Register. The historic resource study should evaluate privately-owned properties within the Preserve without preparation of NR forms so that should such properties later be acquired or be potentially affected by some Federal action, their status will already have been evaluated. Mojave National Preserve is so large an area and current funding for historic resource studies comes in such small amounts that it will be necessary to schedule a series of historic resource studies, each focused on a different topic, to cover the history of the resources within the Preserve: (1) mining; (2) ranching; (3) homesteading (4) exploration; (5) transportation routes (trails [Old Spanish Trail], wagon roads [Beale's Road, Mojave Road], railroads, automobile roads [Route 66], etc.) and communication facilities; (6) settlements and towns; (7) military camps, Patton's Desert Training Center facilities, and Desert Strike training (1964); (8) military operations against Desert Indians; (9) prohibition and law enforcement; miscellaneous other topics not covered by the foregoing Recreation] etc.

- a scope of collections statement and a collection management plan
- revising the list of classified structures, cultural landscape inventories, evaluations, and assessments with emphasis on themes of the history of western exploration and settlement, mining, ranching, and railroading

List of Classified Structures

The List of Classified Structures (LCS) is a park's computerized inventory of known historic and prehistoric structures having historical, architectural, or engineering significance in which the NPS has, or plans to acquire, any legal interest. Properties included in the LCS are either on or eligible to the National Register or are to be treated as cultural resources by law, policy, or decision reached through the planning process even though they do not meet all National Register requirements. The LCS documents significance, condition, use, threats, treatments, cost estimates for treatment, and physical description. Seventy-two structures are currently listed in the Preserve's LCS. This list is a preliminary list and will be maintained and updated as necessary to reflect current research, surveys and interpretations.

Cultural Landscapes

Background

The Cultural Landscape Inventory (CLI) is an evaluated inventory of all cultural landscapes (landscapes, component landscapes, landscape features, and component landscape features) having historic significance in which the National Park Service has or plans to acquire legal interest. The CLI provides the baseline information for a cultural landscape. As such, the CLI assists park managers and cultural resource specialists in planning, programming, and recording treatment and management of listed landscapes. The Cultural Landscape Inventory has three primary functions:

- To identify and inventory cultural landscapes in a national data base,
- To record information about these resources related to their identification, location, description, characteristics, historical development and current management, and
- To provide park staff with the information necessary to make informed decisions about appropriate treatment of these cultural resources.

A Cultural Landscape Report (CLR) serves two important functions; it is the principal treatment document for cultural landscapes and the primary tool for long-term management of those landscapes. A CLR guides management and treatment decisions about a landscape's physical attributes, biotic systems, and use when that use contributes to historical significance. A comprehensive Cultural Landscape Report has three parts, which include:

- A site history with maps, a description of the existing conditions, and an analysis and evaluation of the identified resources,
- Proposed treatment of the landscape, and
- A record of treatment for that landscape

At least sixteen potential historic landscapes have been identified in Mojave National Preserve that are potentially eligible for listing on the National Register of Historic Places, but cultural landscape studies have not been undertaken to identify their character-defining elements.

Plan Actions

Landscapes reflecting mining, ranching, railroading, and ethnographic activities can be seen throughout the Preserve. The Preserve will inventory the cultural landscapes and prepare nomination for those

determined to be eligible for the National Register of Historic Places.

A Cultural Landscape Inventory of the Kelso Club House and Restaurant Historic District was completed in FY 2001. A Cultural Landscape Inventory of the Soda Springs Historic District commenced in FY 2000. The basic cultural landscape inventories have been completed for:

Zzyzx Mineral Springs Historic District (Draft Nomination) (Landscape)
Kelso Depot Historic District (Draft Nomination) (Landscape)
Mojave Road (Landscape)

Potentially Significant Landscapes that will be evaluated:

Marl Springs
Rock Springs
Paiute Pass (feature)
New York Hills Historic District (1890s) (Landscape)
Death Valley Mine (Landscape)
Vanderbilt Site (Component)
Providence Mountains Historic District (Landscape)
Foshay Pass (Feature)
Macedonia Mining District (Landscape)
Rock Springs/Government Holes (Component)
Ivanpah Historic District (Landscape)
Ivanpah (Component)
Clark Mountain Mining District (Landscape)
General Patton's Desert Training Center (Camp Essex) (Landscape)
Lanfair Valley (Landscape with multiple owners)

Given the following historic landscapes are not managed by the NPS there are no plans to evaluate these resources for possible listing:

Union Pacific Los Angeles to Salt Lake City Line (Landscape)
Boulder Transmission Line (Landscape)
Mitchell Caverns (Landscape)

National Register Properties

Background

Authorized by the National Historic Preservation Act of 1966 and administered by the NPS in the National Center for Cultural Resources Stewardship and Partnership Programs, the National Register is the nation's official list of districts, sites, buildings,

structures, landscapes and objects in both public and private ownership that are significant in American history, architecture, archeology, engineering, and culture. Section 110 of the NHPA mandates that all federal properties that are over 50 years of age must be inventoried and evaluated for eligibility to the National Register. It further directs that those properties over 50 years of age that have not yet been evaluated be treated as though they were eligible to the National Register until documented as non-eligible.

The following properties within Mojave NP are listed on the National Register:

- Kelso Depot
- Piute Pass Archeological District
- Aikens Wash National Register District
- Historic Boulder Transmission Lines 1, 2, and 3 Archeological District

Plan Actions

The Kelso Depot was listed on the national register in August 2001. A Historic Structure Report containing history, archeology and architecture sections, and both historic, HABS, and other recent drawings has been completed and published on the Kelso Depot. A Historic Furnishings Report for the Kelso Depot has also been completed (November 2001) for certain rooms that are proposed to be refurnished to their historic appearance.

The following properties have been determined to be potentially eligible to the National Register and National Register nomination forms are being prepared for them:

- Soda Springs Historic District
- Mojave Road
- Rock House

The Historic Resources Study, scheduled for completion by 2005, will identify and evaluate additional properties that may be nominated to the National Register such as the Ivanpah and Providence townsites and the Death Valley Mine.

If the Soda Springs Historic District is determined to be eligible to the National Register, management of the facility could be affected. The National Park Service will produce a Cultural Landscape Report / Historic Structures Report that will specify the historic preservation treatments for the various historic structures and cultural landscape elements at Soda Springs that

were associated with Dr. Springer and the Zzyzx Mineral Springs. The report may recommend the preparation of development concept plans for the coordination of new and existing facilities to better support current and proposed operations.

As a result of the series of historic resource studies, a large number of other properties, including numerous ranches, homesteads, townsites, railroad stations, mines, springs, and ranching developments may be evaluated for their historical significance and integrity.

Ethnography

Background

Attention to the peoples whose lifeways are traditionally associated with resources under National Park Service stewardship is mandated in legislation and the NPS *Management Policies* (2001). Ethnography, part of cultural anthropology, is concerned with the peoples associated with parks, with their cultural systems or ways of life, and with the related technology, sites, structures, other material features, and natural resources. In addition to traditional regimes for resource use and family and community economic and social features, cultural systems include expressive elements that celebrate or record significant events and may carry considerable symbolic and emotional weight. These include rituals, sacred narratives such as origin myths, verbal arts including folk tales, and performing and graphic arts. Cultural anthropologists refer to behavioral, value, and expressive patterns, and technology, as features of cultural systems. Preservation specialists may use the term "intangible" to refer to behavior, values, and expressive culture.

Plan Actions

Developing programs, policies, guidelines, and data to help Preserve management identify and protect culturally significant resources falls to the Preserve's applied ethnography program. A major goal is to facilitate collaborative relationships between the NPS and the people, including Native American groups and the ranching and grazing communities in the Preserve area, whose customary ways of life affect, and are affected by, NPS resource management. Seeking practical outcomes, the program identifies issues that concern management, communities, and the resources they both value and provides information to promote mutually acceptable solutions.

While no ethnographic or traditional cultural properties have been identified in the Preserve, this may change during future dialogues, between NPS staff, the Native American tribes, and the ranching and grazing communities.

Collections Management

Background

The Preserve has existing collections onsite, including a library, a growing collection of paper and photographic archives, and a few historic items from Kelso Depot. Archeological materials emanating from compliance activities currently are stored at WACC. A recently purchased collection of Chemehuevi baskets is being curated at Death Valley National Park. Future acquisitions may include archeological collections, historical collections relating to mining, ranching/homesteading, native and ethnographic communities, and modern military exercises; and contemporary items associated with recreation/tourism (for example, Soda Springs).

Plan Actions

The National Park Service will prepare a scope of collections statement and a collection management plan to address and document the management, protection, preservation, and use of natural and cultural specimens, objects, documents, photographs or electronic media in accordance with the provisions of NPS *Director's Order 77*. The scope of collections statement will address the significance of the collections and set limits on collections consistent with the park's mission, purpose and identified themes in its interpretive prospectus. It would also address collections generated by research, resource management, and compliance activities. The collection management plan will document and evaluate alternative approaches to management, preservation, and protection of collections identified in the scope of collections statement. Alternatives will include developing in-house collection management capability, with a museum storage facility, or developing cooperative agreements with other park units, other federal agencies, or universities and museums. Mojave staff are currently working with the Pacific Great Basin and Columbia Cascades staff curators and the Death Valley National Park curators regarding these alternatives and other curatorial planning needs. Curatorial storage preference will be given to local facilities that will be more readily accessible to park staff and researchers.

Archeological Resources

Background

Archeological resources occur in almost every unit of the national park system. What makes archeological resources significant are their identity, age, location, and context in conjunction with their capacity to reveal information through the investigatory research designs, methods, and scientific techniques used by archeologists. Such resources are critical to understanding and interpreting American prehistory and history; however, archeological resources are fragile and may be easily destroyed unless proper attention is paid to their management as mandated by the following federal laws and policies, and their respective implementing regulations, standards, and guidelines:

- NPS *Management Policies* (2001)
- Antiquities Act of 1906
- Sections 106 and 110 of the National Historic Preservation Act of 1966
- Archeological and Historic Preservation Act
- Archeological Resources Protection Act of 1979
- Native American Graves Protection and Repatriation Act of 1990

There is significant documentation of archeological information at Mojave which continues to expand. Since 1997, Mojave has been developing an archeological sites management inventory system (ASMIS). The ASMIS database is the NPS standard database for archeological resources and provides data necessary to complete GPRA reporting requirements. All Mojave archeological base maps on file in San Bernardino have been digitized. Archeological and project data collected up to 1999 (approx-



mately 1,300 sites) has been entered in the database. All available site files have been scanned, verified, and entered in the database. A GIS has been created to integrate all available data through a series of custom tools in ArcView. ASMIS is the only electronic site database for national parks in California like Mojave.

In 1996 the California Historical Resources Information System (CHRIS) was initiated, with the support of the Desert Managers Group, for the development of an Internet-based GIS application for the digitizing archeological information available in the California Information Centers. A massive undertaking, thus far the CHRIS has digitized all the

base maps at the San Bernardino Information Center.

Plan Actions

Mojave National Preserve will seek to identify, protect, preserve, and interpret archeological resources under its jurisdiction.

The development phase of the ASMIS program will continue with completion anticipated in 2001. Updates to the database would be undertaken as new information becomes available. Except as necessary for projects with proposed land disturbance, little new archeologically-based research is anticipated in the foreseeable future.



Facilities and Development

The management goal is to minimize development of new facilities that would detract from the setting and sense of discovery that currently exists. This means minimizing new development, including the proliferation of signs, new campgrounds and outdoor interpretive exhibits. Mojave will look to adjacent communities to provide most visitor support services such as food, gas, and lodging.

The National Park Service intends to locate some management facilities outside the Preserve, consistent with the existing management direction and proposed actions identified in this plan. This will include, but is not limited to, the headquarters site in Barstow, visitor information facilities in Baker and Needles and potentially employee housing in Baker, Nipton, or Essex. Buildings may be acquired through donation or acquisition. An assessment will be made for possible future uses such as visitor contact stations, administrative facilities, employee housing or restoration as historical interpretive properties.

SUSTAINABLE DESIGN

The Congressional mandate to the National Park Service has been expressed as conserving resources while providing for their enjoyment by the public in a manner that will leave them unimpaired for future generations. This concept can best be expressed today as *sustainability*, which is defined simply as making decisions and engaging in practices that meet the needs of the present generation, without compromising the ability of the next generation to meet its needs. The National Park Service has issued, and will update as necessary, guiding principles for sustainable design that will be applied throughout the Preserve.

Mojave will implement sustainable practices and pollution prevention activities in all its management actions, including the planning, construction and maintenance of facilities. New and rehabilitated visitor and management facilities in Mojave will be harmonious with park resources, compatible with natural processes, aesthetically pleasing, functional, as accessible as possible to all segments of the population, welcoming to traditionally associated groups, energy-efficient, and cost-effective. In practical terms, the park must also integrate this philosophy into its daily standard operating procedures through adoption of water and energy conservation, recycling and waste reduction practices. Alternative energy sources such as solar electricity will be considered for facilities at remote NPS locations of housing or operations. Park facilities and operations will

incorporate sustainable practices and elements to the maximum extent practicable in planning, design, siting, construction, building materials, utility systems, recycling, and waste management.

VISITOR INFORMATION

Information Centers and Sources

Background

The National Park Service currently leases commercial space under the giant thermometer adjacent to the Bun Boy Restaurant in Baker, California as a visitor information center. The Death Valley Natural History Association and Mojave National Preserve share support and material costs. Information is available about recreational activities in Death Valley National Park, Mojave National Preserve and surrounding Bureau of Land Management recreation sites such as Dumont Dunes.

The Preserve leases office space in downtown Needles, California, for a visitor information center. This facility is jointly staffed by the National Park Service and the Bureau of Land Management and provides interpretive and recreational information about Mojave, Lake Mead, and BLM lands.

The Preserve also operates a visitor contact center at Hole-in-the-Wall in a building constructed by the Bureau of Land Management. A small amphitheater and picnic area are also available. This visitor contact center serves as a point for people camping in or visiting the area and provides overnight, short-term housing for one NPS staff member. Electricity is provided by a solar electric system.

Information on park recreational opportunities has become increasingly available on the internet over the last several years. The National Park Service maintains sites on every park unit at the address: www.nps.gov. By accessing this site, visitors can also gain access to numerous other links about NPS issues, policies and visitor data. This site will help visitors planning a trip to the area gain the basic information about activities, camping, and phone numbers. From the general nationwide homepage, the park has constructed much more detailed information on Mojave. For instance, detailed information on the geology of the Preserve has been assembled in a cooperative venture with the U.S. Geological Survey. In addition, the park cooperated in the development of an inter-agency desert-wide website that provides information on public lands in the desert and links to many interesting and informative sites. This page can be found at: www.californiadesert.gov.

Plan Actions

A small information and visitor contact desk will be staffed at the headquarters building in Barstow to serve the public and fill the needs of local communities. Staffed information centers at Baker and Needles will continue to operate with the same focus as at present for the near future, although the exact location is subject to change since the facilities are leased. Mojave will continue to pursue partnerships with other agencies (federal, state and local), tribes and private organizations to offer a broad range of visitor information at key desert gateway locations that target a variety of users.

The Preserve has many highway entrances and only two staffed information centers outside its boundary. Many visitors arrive without much opportunity to receive advanced information. To remedy this situation, the staff will continually investigate and develop effective means of providing advanced information about the Preserve and the Mojave Desert. The overall objective of this proposal will be to try to provide advance information that will enhance the quality of visitor's experience.

The Hole-in-the-Wall information center will continue to provide visitor information and serve as a base for interpretive programs such as ranger-led walks and talks. Eventual replacement of the existing information center is being evaluated in a separate development concept plan for Hole-in-the-Wall. One objective of this development concept planning effort is to design and locate facilities to be operationally efficient in their purpose, provide unstaffed visitor information, but be visually secondary and complementary to the beauty of the natural resources.

The park will continue to maintain and enhance information on Mojave via the National Park Service website (www.nps.gov/moja), and will continue to explore new opportunities for information distribution as technology develops. Mojave is also a partner in a project to provide interagency desert-wide visitor information on the internet at a single site (www.californiadesert.gov).

Interpretive Facilities

Kelso Depot

Background

The Kelso Depot offers considerable potential as the main interpretive and visitor contact facility for the Preserve. The building has two main floors above ground, and a basement space. Total area in the



building is 11,500 square feet. Currently, it is not accessible to the public, and it is interpreted only by a couple of information panels around the building. The building was abandoned by Union Pacific in 1985 and has been damaged over the ensuing years by vandalism, removal of asbestos, earthquakes, and fifteen years of nonuse. Most of the historic furnishings were removed prior to NPS ownership. Modifications over the years have resulted in alteration of the historic fabric in some parts of the building, such as the addition of modern drywall, new wall partitions and drop ceilings. Most of the historic landscaping has long since died or been removed, except for six large date palms. Parking is on denuded grounds to the west and north of the building. Bricks from the front of the building were removed by BLM and stored in a large steel container onsite. The site has easy access to electrical power, but telephone lines are limited at this time. Water and sewer are no longer available and must be developed if the building is to serve the public as a visitor center. Portable toilets were installed by the NPS in 1995 due to the high use in the area.

The depot is within a 100-year floodplain. The National Park Service conducted a floodplain study in 1997 to determine the potential threat of flooding to the building. Mitigating measures such as armoring the dike north of the depot, elevating a portion of Kelbaker Road so as to fill in the gap in the dike that the road creates, or establishing an advanced warning system could reasonably address concerns for the protection of human life and government property.

Plan Actions

Kelso Depot will be rehabilitated for use as a museum and interpretive facility. The exterior of the building will be restored to its pre-1942 appearance, as will certain interior spaces such as the Beanery, the ticket office, the conductor's room and two overnight lodging rooms. Other spaces inside the depot will be rehabilitated for visitor information displays, natural and cultural exhibits, audiovi-

sual exhibits, an auditorium, public restrooms, publication sales, working space for staff, conference/classroom space, and storage space. The landscaping will be rehabilitated to approximate the historic scene as much as possible, recognizing the need for parking, restrooms and concern for water conservation. The building will be fully accessible and provide the following primary functions:

- Visitor information and interpretation of the Preserve's natural and cultural resources
- Space for interpretive talks, videos, slide shows and educational classes
- Some NPS administrative offices, workspace and storage for interpretive and cooperating association functions
- Space for a Natural History Association sales outlet where books and other educational materials relating to Mojave can be purchased.
- Some overnight rooms for volunteers, researchers or employees
- Limited food sales initially, but potential for full service restaurant at some point in the future

Besides the depot itself, the following are other key elements of the Kelso Depot rehabilitation and visitor center strategy. The development concept plan for the Kelso Depot provides a more complete description of these concepts, as well as discussions of alternative layouts and building schematics:

- Evaluate the town of Kelso for possible nomination as a historic district
- Seek to acquire (or develop partnerships) the Kelso schoolhouse and general store for possible preservation and interpretation
- Seek to acquire adjacent private lands to provide adequate space for parking and exhibits and to allow the protection of the cultural landscape of the Kelso area
- Take necessary steps to secure flood dike to ensure protection of the depot during flood events
- Install water well and septic system
- Evaluate possible related interpretation of historic iron ore loading bin and Vulcan Mine

Soda Springs (Zzyzx)

Background

The visitor shade structure, restroom, and parking lot have been reconstructed or replaced to remove

structurally unsafe and nonfunctional facilities. A self-guided trail and some interpretive panels provide some basic information on some aspects of the history and current use. A few interpretive panels and a self-guided trail currently provide limited visitor information. In 2000, the NPS replaced an existing interpretive shade structure, comfort station and parking lot. These facilities will serve as the focal point for visitors coming to Zzyzx for day use.

Interpretive opportunities at this historic desert oasis abound. This site has been used for hundreds of years, from early Native Americans, to a stage stop and public bathing site in the 1870s, to the Tonopah and Tidewater Railroad in the early 1900s, to a religious group attempting to mine gold in the nearby hills in 1914, to Curtis Springer and his Zzyzx Mineral Springs and Health Resort, and finally to its current education and research use for the last twenty years. The area also provides habitat for the endangered Mohave tui chub and offers a unique opportunity for visitors to experience and learn about the importance and diversity of desert wetland/riparian habitat.

Plan Actions

Mojave will explore opportunities for expanded day use trails in the area, and will expand the existing self-guided interpretive program and exhibits. These opportunities will be developed through the long-range interpretive plan and site specific planning. Occasional ranger-led programs may be provided. Planning, visitor use and interpretive programs in this area will be coordinated with California State University. Where possible, the ongoing desert research will be interpreted to the public.

Hole-in-the-Wall

Background

Existing interpretive facilities are limited to basic information and displays in the existing visitor information center. Maps and book sales are also available. Seasonal staff or volunteers open the building during the spring, summer and fall. A couple of existing interpretive panels are also in place at the top of the Rings Trail.

Plan Actions

This proposal will be implemented to improve visitor information about recreational activities in the area, and will provide some interpretation of the natural and cultural resources. The NPS will develop a site-specific management plan for the Hole-in-the-Wall area to address visitor and administrative facilities.

This effort will be guided by the following goals:

- Visitor and administrative facilities will be separated and their footprint on the landscape will be minimized. Sustainable practices will be fully incorporated as buildings are replaced or as opportunities arise.
- Overnight facilities will be relocated outside of active 100-year flood channels or warning/protective systems installed.



- Information will be provided in ways to interpret the natural and cultural history of the area regardless of the staffing of the information center.
- Disturbed areas will be restored with native vegetation and interpretive information on desert disturbance and restoration will be developed.
- The existing picnic area and group/equestrian sites will be evaluated for possible relocation.
- New trail opportunities to expand visitor use activities in the area will be considered.

Signing and Orientation

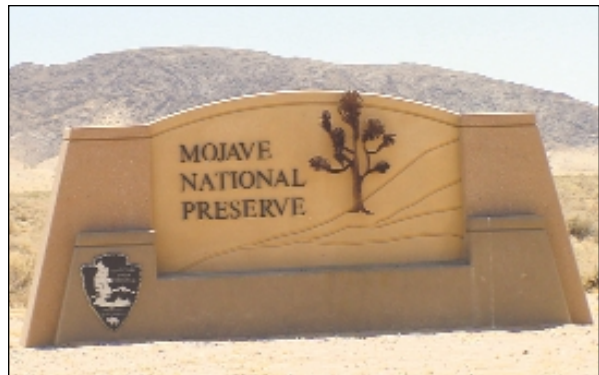
Background

Existing signs in the Preserve can be categorized as directional, regulatory and informational. The county posts the regulatory signs (i.e. speed limits) along the main travel routes. Directional signs, providing mileages and directions to specific sites, have been posted by the county, the National Park Service and the state. The park has recently erected major entrance monuments at each of the six paved entrances, marking the entrances into the Preserve, and including an information panel with a map and general information. Caltrans has also recently erected Mojave National Preserve signs along I-15 and I-40 at each of the entrances. Informational signs mark points of interest and visitor facilities or

may provide interpretive information about a particular resource. Many such signs existed when the Park Service began administering the area in 1994. Most of the signs marking the visitor facilities have been replaced with standard NPS signs, reflecting the new Mojave National Preserve designation.

Plan Actions

The philosophy on signs will be for them to be unobtrusive, used sparingly, and blend with the natural environment so that the undeveloped wild character and sense of exploration remains. The National Park Service will prepare a sign plan to ensure that this vision will be carried out. The sign plan will provide for directional signs to major points of interest, which are typically located on the major roads that carry most of the traffic. Secondary or backcountry roads will remain relatively free of directional signs. The intention will be to keep visitors from becoming lost. Efforts will be made in the sign plan to use international symbols or other appropriate methods to keep signs simple and easily understood for the broad spectrum of visitors entering the parks. Because the desert can be unforgiving in the summer, emphasis will be placed in the sign plan for signs that could help protect the health and safety of visitors unfamiliar with the desert.



A variety of portable media will also be used to minimize the proliferation of signs. Technological media such as compact disks and audiotapes will be provided to give visitors portable information. Brochures and other printed material will support a self-guiding interpretive program. Information will be provided in several languages and for various learning styles. These items might be part of an advance information program. NPS employees will emphasize visitor safety and resource protection.

NPS staff will develop an interpretive plan that will guide the overall direction and emphasis of the interpretive and educational programs. The overall objective will be to support the vision of visitors

being able to experience a land relatively free of development and improvements, with opportunities to feel a sense of exploration and discovery. The staff will constantly seek to understand and respond to visitor needs while striving to improve interpretive programs and facilities. To help accomplish this goal, visitor studies will be conducted every 5–10 years or as needed to gain the appropriate information (as funds are available). The National Park Service will work with California State Parks to develop a coordinated interpretive program that will offer information on Providence Mountains State Recreation Area and the Mojave National Preserve.

Existing interpretive media will be analyzed for accuracy, effectiveness, and appropriateness; some might be removed or replaced. Interpretive services will be supported by nonpersonal media such as wayside exhibits, brochures, and publications. Personal services such as ranger-led tours and nature walks will also be available.

Wayside Exhibits

Background

The BLM installed interpretive panels at Kelso Dunes, Zzyzx, Hole-in-the-Wall, Ft. Piute, Rock Springs, and the Teutonia Peak trailhead. The National Park Service has also installed an interpretive panel at the Kelso Depot.

Plan Actions

A minimal number of road or trailside interpretive wayside panels will be installed. Displays typically will be placed along paved or other heavily traveled roads to interpret significant and interesting resources visible from each area. Safety and orientation panels will be installed at key trailheads, developed campgrounds and other high visitor use areas such as Kelso Dunes. Care will be taken to make and keep these displays as unobtrusive as possible and secondary to the landscape they were interpreting. The objective behind this proposal is to provide a landscape relatively free of exhibits or signs so that visitors could experience a sense of exploration and discovery. Signs will be posted in parking areas asking visitors to check for tortoises under their vehicles before leaving parking areas.

Developed Campgrounds

Background

Mojave National Preserve has two developed campgrounds, Hole-in-the-Wall and Mid Hills. There is no fee to enter Mojave National Preserve, but a fee is charged

at Hole-in-the-Wall and Mid Hills campgrounds for the use of an individual or group campground.

Hole-in-the-Wall contains 35 campsites, water, vault toilets, an RV dump station and a campground host site. It is in very good condition. All campsites are accessible to visitors with disabilities and are designed for access by large recreational vehicles. The water system has recently been refurbished to provide better service. There is also a group camping facility with equestrian facilities at Hole-in-the-Wall.

The Mid Hills campground contains 26 campsites. It was not designed for larger vehicles, but serves tent campers and those with small recreational vehicles. The Mid Hills water system has been completely replaced and new vault toilets were installed in late 1997. Picnic tables and fire grates have also been upgraded.

California State Parks also operates a small, six-site campground at Mitchell Caverns.

Plan Actions

Mojave will retain the two existing developed campgrounds at Mid Hills and Hole-in-the-Wall that together provide 61 campsites. Ongoing improvements to existing campgrounds will continue. Campsites and trails in the Mid Hills campground will be redesigned to increase the level of accessibility for people with disabilities and to resolve other concerns. Campsite densities will not be increased. If visitation significantly increased to the point where many visitors were being turned away during most of the peak season, a campsite reservation system will be considered.

One new semi-developed campground with fewer services and campsites (approximately 15) will be considered in a separate planning effort.

Research and Education Centers

This section specifically addresses ownership and maintenance of facilities at existing research and education centers in Mojave National Preserve. The “Partnership” section of this plan addresses the NPS education and research mission and mandate, and partnership opportunities with universities to fulfill this mission. Use of the park as a natural laboratory for scientific study, research permits and collections are addressed under “Research and Educational Activities.”

Soda Springs Desert Study Center

Background

Soda Springs Desert Study Center is located a few miles south of I-15 off the Zzyzx exit, which is approximately 8 miles south of Baker. It is home to the Desert Studies Consortium, part of the California State University system. The facility, operated under an agreement with the National Park Service, offers dormitory-like lodging and classroom space for researchers and students attending field classes and extended education courses. Solar, diesel, and wind power provide electricity to the buildings. The facility consists of a complex of historic and modern buildings all located on National Park Service property. The historic buildings and site features have been nominated for the National Register of Historic Places as a historic district. There are 12 buildings, 3 sites, and 11 structures that have been identified as contributing elements to the historic setting. A total of 12 buildings/structures that have not been identified as contributing to the historic setting.

All the buildings (except mobile ones brought in by California State University) are federal property. The consortium has repaired and maintained most of the buildings and site features over the years to keep them in good condition. The site, structures, and buildings are to be managed through a cooperative agreement being developed between the consortium and the National Park Service. A caretaker associated with the consortium lives at the facility.

An unstaffed visitor information shade structure with restrooms and parking is located at the entrance to the education center. A path with interpretive signs leads visitors from the shade structure and around the pond directly to the east.

A fence and gate south of the facility keeps most trespass vehicles from the adjacent BLM Raptor off highway vehicle open area out of the facilities, but on occasion vehicles illegally bypass the fence and come across the dry lakebed, which has been designated as wilderness.

Plan Actions

The California Desert Protection Act (section 514) calls for a cooperative management agreement between the National Park Service and the California State University to manage facilities and provide desert research and education at the Soda Springs Desert Study Center. This center operates at Zzyzx in facilities and land owned by the federal

government. The cooperative agreement will define use and maintenance responsibilities of the buildings and other facilities between CSU and the NPS. Buildings not routinely used by CSU may be considered for park offices or housing, especially where an NPS presence will assist in supporting and protecting resources and provide staff to interact with public not associated with CSU programs.

By virtue of its inclusion within the Mojave National Preserve, and as specified in law, the area must be managed consistent with federal laws and NPS policy and regulations. Many historic structures are located at this desert oasis, which has served as a desert research and educational facility for over twenty years. Historic structures, cultural landscapes, and other cultural resources must be maintained in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. The NPS and the public could benefit from a continued partnership with CSU to provide for continued maintenance and security of the facilities, offering of educational activities on desert resources for the public, and to attract scientific interests to pursue research in the Preserve.

Granite Mountains Natural Reserve

Background

The Granite Mountains Natural Reserve is part of the University of California natural reserve system and is dedicated to ecological research and education. The purpose of these reserves is to manage, protect and preserve sites that are undisturbed examples of California's extraordinary and diverse habitats for long term scientific research and for public education. On federal lands, this State purpose must be balanced with the park purpose and mission of protecting resources unimpaired for future generations and to provide for visitor enjoyment. The reserve serves as a classroom, laboratory, and ecosystem library for field studies in natural sciences. Every year, field classes and researchers come to the reserve. With the passage of the California Desert Protection Act, Congress designated 9,000 acres of the Mojave National Preserve as the Granite Mountains Natural Reserve. Within the 9,000 acres, approximately 2,200 acres are owned by the University of California. Housing, classroom facilities, a library, and office space is constructed and maintained by University of California, Riverside (UCR) on state land. No facilities are located on NPS land. UCR has sole authority for the use and maintenance of their facilities. The NPS and UCR have signed a cooperative agreement for the management and visitor use of the reserve.

Plan Actions

Section 513 of the CDPA designated the Granite Mountains Natural Reserve and called for a cooperative management agreement between the National Park Service and University of California to manage facilities and provide desert research and education. That agreement was signed by the UC Riverside Chancellor and the National Park Service.

The National Park Service will cooperate with the Reserve to develop informational kiosks for key entry points to provide information to the visiting public about the purpose of the Reserve, the NPS mission, and the need to exercise caution when visiting the area so as to not inadvertently disturb research projects.

Park Support Facilities

The National Park Service intends to locate some facilities outside the Preserve, consistent with the existing management direction and proposed actions identified in this plan. This will include, but is not limited to, the headquarters site in Barstow, visitor facilities in Baker and Needles and possibly employee housing, offices or maintenance shops in Baker or Essex.

Headquarters

Background

The headquarters for Mojave National Preserve currently occupies leased office space in the Mercado Mall (222 East Main Street) in Barstow, California. Other suites are available for leasing, but secured parking for government vehicle storage and warehouse space is unavailable at this site. In 2000, Mojave initiated steps through the General Services Administration to have new office space built to suit the needs of the headquarters operation. Commercial support services and housing are readily available in Barstow, Victorville, and surrounding communities.

Plan Action

Headquarters for Mojave National Preserve will continue to be located in the Barstow area. Space will be provided for the superintendent's staff, administration, planning, visitor services, resource management, special uses, and other central administrative offices. In addition, Mojave is co-locating with desert management partners (Department of Defense, Mojave Desert Ecosystem Program, Department of the Interior and Department of Defense Desert Manager coordinators and the U.S. Fish and Wildlife Service) to improve public access to agencies and information.

Field Offices

Background

Field offices are needed to provide working space for park rangers, resource and maintenance staff. The information center at Hole-in-the-Wall is also used as a field office for NPS staff. A visitor information center in Needles is in a leased building and also serves as office space for ranger staff. A small building was constructed in Baker in early 1998 for use as an office for interpretive, visitor protection, and maintenance staff. A mobile home in Kelso is used as a residence/office for a visitor protection ranger.

Plan Actions

Similar offices, such as the one built in Baker, are needed at other locations in the Preserve. The specific location and design of these buildings will be addressed in site specific development concept plans for these areas. Areas of prime consideration include Cima, Kelso, Lanfair Valley and the Hole-in-the-Wall vicinity. Sites with other existing development, electrical and phone service would receive first consideration. Facilities acquired from willing sellers will be evaluated in accordance with NPS policies for adaptive use as administrative sites.

Maintenance Facilities

Background

An office building was constructed in early 1998 in the abandoned Caltrans yard in Baker. Maintenance and visitor protection staff currently have offices in this building. The yard has several small structures that are used for storage and covered parking. A small carpenter shop was constructed in one of the empty buildings. The maintenance yard has plenty of open space to be used for vehicle and material storage. Some maintenance work is also based out of the Hole-in-the-Wall fire center.

A central maintenance facility is needed to provide storage and work space for maintenance activities. Baker currently serves as the interim central maintenance operation, taking care of most short-term maintenance needs. In late 2001, a maintenance area was being added to the new interagency fire center (see below). Other facilities such as shops, enclosed storage, and offices are also being constructed alongside this facility.

Plan Actions

The National Park Service will consider the option of contracting for some maintenance services if it will make economic and practical sense. General areas

that will be considered for a central maintenance function include Cima, Hole-in-the-Wall vicinity, Lanfair Valley and Essex.

Interagency Fire Center

Background

As of October 2001, the wildland fire control operation at Hole-in-the-Wall included a dormitory, office space, a vehicle storage building, and other storage buildings. Electricity is provided by a diesel generator. The Hole-in-the-Wall fire center dormitory, which is in fair to poor condition, houses 12 employees. Current staffing plans call for 15 employees in 1998 and up to 20 employees in the future, which means the dormitory is inadequate. Staff offices are also located in this building. The National Park Service added aboveground storage tanks for gasoline and diesel fuel. A dirt helicopter pad located just outside the fire center compound does not meet current agency standards. When used in the past, the access road to the group camping and equestrian areas was blocked.

Facilities for a seasonal interagency fire crew of fifteen, two large fire trucks, and support vehicles and equipment are necessary in close proximity to the historical fire occurrence. The fire crew responds to wildland fires throughout the Preserve, and extending south to Joshua Tree National Park and north to about Shoshone. Natural lightning caused fires occur primarily in the line of mountains extending from Granite Mountains to the Castle Peaks on the Nevada state line. In addition, vehicle fires along interstates 15 and 40 during the hot summer months threaten park resources. The fire crews respond to the vehicle fires not to suppress the vehicle fire but to ensure it does not spread to wildland.

Plan Actions

Wildland fire management operations will continue to be managed in cooperation with the Bureau of Land Management. An existing dormitory, office and garage at Hole-in-the-Wall are being replaced due to their poor condition. A value analysis process was utilized to consider the advantages of various building designs and about twelve alternative site locations. A separate development concept plan and environmental assessment for the entire Hole-in-the-Wall area is currently being developed. This plan will consider other visitor facilities. Construction to replace the existing fire center began in October 2001.

Employee Housing

Background

Most employees are not offered government housing, and must find their own residence on their own based on their assigned duty station location. However, some field positions, such as protection rangers and maintenance staff may be duty stationed at locations inside the park in order to have an onsite presence. It is also necessary to have short response times for these positions in the event of an emergency.

NPS employees find housing in many different ways. At headquarters in Barstow, employees obtain housing in the local communities. Employees in Baker may have the option of living in one of the five doublewide trailers once owned by the California Department of Transportation (Caltrans) or renting space in the community. Rentals are limited in Baker. The trailers, which are in an old Caltrans maintenance yard on BLM-managed federal land at the north end of town, are in fair to good condition. The NPS has upgraded them for occupation.

Kelso has a number of doublewide trailers that the railroad uses to house employees. Not all of the trailers have been occupied, and the National Park Service was able to rent one of them for employee housing. The stability of this housing option is uncertain. The National Park Service also owns a home northeast of the Hole-in-the-Wall ranger station off Black Canyon Road. The home is in poor condition and is undergoing major rehabilitation before it can be occupied. The visitor contact center at Hole-in-the-Wall provides a small efficiency apartment for one person. Existing housing in the community of Needles meets employee needs.

Plan Actions

When staffing levels exceed available NPS and private housing in Baker, new housing will be constructed to replace the existing double-wide trailers. Construction of new housing in Baker outside the existing yard will require appropriate approval and will depend on the availability of funding to buy private land to construct housing. The NPS will also consider leases or similar agreements with private parties to ensure housing for employees. Until then, the National Park Service will continue to upgrade the existing double-wide trailers where possible. NPS employee housing will not be provided in Needles or Barstow; rather, employees will find housing on the open market.

If existing homes in the Preserve were acquired by government purchase or donation, the park will evaluate the historical and aesthetic value, management needs, and the cost effectiveness of bringing these homes up to current standards. Standards and guidelines will include current NPS housing guidelines, building codes, historic preservation guidelines and standards, accessibility and energy conservation. Housing might be renovated, replaced, stabilized or removed as appropriate.

Before upgrading or renovating existing acquired homes or constructing new housing for employees, the National Park Service will evaluate the location of the housing and determine whether private housing within a one hour drive could serve the same need, and whether the total housing units are the minimum necessary to meet the mission of the Preserve. New housing construction will be considered when the evaluation step determined that renovation was not practical from an economical or operational standpoint and that the home had no historic significance.

Additional housing for employees in the Kelso area will also be pursued to support park programs. Housing may also be provided at the Hole-in-the-Wall area as positions are filled and adequate housing within a one-hour drive is unavailable outside the Preserve. A housing management plan is being prepared to consider the number and types of units necessary to meet the mission of the Preserve.

Access and Circulation

Background

Mojave National Preserve offers visitors a broad range of access options. Existing developed roads range from unmaintained primitive jeep roads to paved highways. A network of over 2,000 miles of roads is available. Hundreds of miles of old roads in wilderness, as well as developed hiking trails, and cross-country hiking provide foot and horseback access to all of the diverse and remote reaches of the Preserve.

In addition, the Union Pacific railroad traverses the center of the Preserve and provides a unique opportunity for seeing some of the inaccessible portions of the area, especially through the Devil's Playground. Train traffic on the Union Pacific tracks is also very active with up to 30 trains per day.

The region contains several highways that serve as major transportation corridors through the state.

Interstates 40 and 15 function as major routes between Los Angeles and southern California and many states to the east.

Kelso Depot is located at the Preserve's most used crossroad, where the 1997 average was 172 cars per day. Weekend traffic levels are estimated as being much higher but exact figures are not available.

Old Route 66 (National Trails Highway) runs through the south end of the planning area between Needles and Ludlow. The road is maintained by the county of San Bernardino. An increasing number of travelers have been attracted to this road because of the American culture and nostalgia attached to this highway. Movies such as *Bagdad Cafe* and other media have raised awareness to the point where even international visitors are driving the highway. Many cities and businesses along the highway are promoting Route 66 for the potential revenues from tourism. The highway has been nominated for the National Register of Historic Places.

Traffic has increased on local paved and maintained roads over the past years. The roads carry travelers north of Palm Springs, through Mojave National Preserve onto I-15, then back again. It is assumed that most of these travelers are headed to Las Vegas for the weekend.

Roads

Plan Actions

No major changes will be made to the existing roads. Some limited improvement of heavily used roads might be undertaken when funds permitted, such as the addition of crushed rock to the Kelso Dunes and Soda Springs access roads. Vehicle use will be limited to street legal vehicles. No offroad driving will be permitted. Driving in desert washes is not permitted unless they are shown as a developed road on park maps. These routes are usually easily identified on the ground, even after storms, due to the distinctive lack of vegetation from years of use forming a road alignment. Tracks caused from one or two vehicle passes do not establish a road.

To provide detailed guidance for managing the Preserve's road system, a road management plan will be prepared to evaluate the need for duplicate road sections, road surface conditions, and the appropriate level of maintenance. The management philosophy will be to enhance the visitor experience while providing for safe and efficient accommodation of park visitors and also protecting the natural and cultural environment. It also will include the

need to provide a road system that will allow for a variety of driving experiences consistent with the purpose and significance statements, as well as the desired future conditions for the Preserve.

Paved Roads

Background

Mojave National Preserve has six main paved entryways: Kelbaker Road, Cima Road, and Ivanpah Road off of I-15 on the north side; Kelbaker Road and Essex Road off I-40, and Goffs/Lanfair Road off of Route 66 on the south side. All these roads generally lead visitors in a north-south orientation with Kelso as a common point for four of these roads. The roads are all suitable for standard sedans and are in fair to good condition. Among these roads, Kelbaker road from I-40 to Kelso, Kelso-Cima Road and Morning Star Mine Road receives the heaviest use. Most traffic occurs on weekends as many drivers use these roads to travel to and from Las Vegas and Palm Springs.

The National Park Service does not maintain any paved roads at this time. San Bernardino County maintains an estimated 255 miles of road in the Preserve of which 176 miles is paved.

A road inventory by the county in 1996 indicated that there are approximately 2,180 miles of roads within the Preserve. Approximately 345 miles of roads were closed to mechanized and motorized use by Congressional designation of wilderness in the 1994 California Desert Protection Act. Roads were created over many years for access to utility corridors, ranching improvements, private property, mines, homesteading, favorite hunting or camping areas, viewpoints and for a variety of other reasons.

Plan Actions

The county of San Bernardino will continue to maintain the paved roads throughout the Preserve under a cooperative agreement with the NPS. An inventory of these roads, totaling about 176 miles, will be included in the cooperative agreement. In accordance with NPS regulations at 36 CFR 4.2.1, and to assure the safety of visitors and protection of park resources. Signing along these roads will be a joint responsibility, with the county installing and maintaining most regulatory signs, while the NPS will install and maintain interpretive and directional signs.

Maintained Dirt Roads

Background

The National Park Service maintains approximately 20 miles of dirt roads, including the Wildhorse Canyon, Kelso Dunes (first three miles), and the Zzyzx access road. The county maintains the unpaved Black Canyon Road, Lanfair Valley Road and Cedar Canyon Road (approximately 79 miles), which are normally suitable for use by passenger cars, except for occasional flood damage.

Plan Actions

The county of San Bernardino will continue to maintain the graded dirt Cedar Canyon, Black Canyon, Ivanpah, and Lanfair Valley roads (approximately 79 miles). The National Park Service maintains graded dirt access roads to Zzyzx, Kelso Dunes and Wild Horse Canyon road (approximately 20 miles). The cooperative agreement with the county will identify limited existing sites for equipment and materials storage, and specify road maintenance standards, lengths and widths. As with paved roads, signing along these roads will be a joint responsibility, with the county installing and maintaining most regulatory signs, while the NPS will install and maintain interpretive and directional signs.

Backcountry Dirt Roads

Background

The Preserve also has hundreds of miles of unmaintained dirt roads that traverse the backcountry. The condition of these roads varies considerably, from sometimes being passable by a passenger car, to barely suitable for a four-wheel drive vehicle. No regular maintenance is conducted by the National Park Service or San Bernardino County on these roads, although emergency repairs may be conducted.

Plan Actions

High-clearance and four-wheel-drive roads will not be routinely maintained by the Preserve or the County. However, emergency repairs or limited maintenance might be undertaken by the NPS or volunteer groups under cooperative agreements. Some private landowners that reside in the Preserve or organized groups may do limited maintenance on certain roads such as dragging the road or using a small tractor. Where these roads cross federal land, the NPS will require a permit for such routine maintenance. This permit is necessary to assure that no tortoise is harmed by the activity, and the maintenance is done in accordance with NPS standards. Backcountry users that encounter washed out roads

during their visit may make emergency repairs using hand tools, if required for them to exit an area.

Some pre-existing backcountry roads were included in wilderness areas by Congress and are no longer open to mechanized or motorized use. These routes are posted with carsonite or wooden signs and may not be used by mechanized or motorized vehicles of any kind, including bicycles, pursuant to the Wilderness Act.

Mojave Road

Background

The Mojave Road is a historic route that traverses the Preserve for about 60 miles from Ft. Piute to Zzyzx. The road was used from 1857–1883, abandoned, and not regularly used again until the early 1970s. A series of guidebooks authored by Dennis Casebier provide directions and interpretation of the cultural and natural history along the route. See the cultural resource section for a description of the road history. The existing alignment follows the historic road in some sections, while in others it parallels the old road section on a newer road. The section from old Ft. Piute through the canyon to the top of the ridge has not been used by vehicles in many years and retains much of its historic character. Most of the route is suitable only for high clearance or four-wheel drive vehicles. Maintenance over the years has been performed by user groups, such as the Friends of the Mojave Road.

Plan Actions

The Mojave Road will remain open for street legal vehicles, mountain bikes, equestrians, and hikers. Interpretive information will be available at visitor and information centers to enhance the public's understanding of features along the road. Opportunities to interpret significant features along the road will be considered. Information will stress proper low impact camping and travel techniques. The National Park Service will consider granting business permits for commercial guided tours of the road to provide visitors without the appropriate vehicle an opportunity to experience this resource.

Maintenance of the Mojave Road will be considered in a road management plan for the Preserve. Under that plan, general guidance will be given to allow the Mojave Road to develop its own character with minor maintenance action until the plan was completed. Maintenance generally will be limited to repairs needed to allow continued passage by vehicles currently using the road. The National Park

Service will seek partnerships with volunteer groups to help with maintenance of the road and other features in the road corridor.

Large groups will be required to camp at designated areas and obtain a special use permit (see Groups and Organized Events section for details). Areas that will be considered for large group use are Grotto Hills, Willow Wash, Seventeen Mile Point, the southeastern edge of Soda Lake in the Cow Hole Mountains, and the area known as the Granites, which are southwest of Soda Lake. The number of large groups using the road will be managed through the special use permit system. The intent of this action will be to keep adverse impacts low and avoid conflicting demands for camping space. This proposal will be further addressed under a future backcountry or visitor use management plan.

Nomination forms are being prepared to nominate the historic Mojave Road to the National Register of Historic Places. The National Park Service will strive to maintain the experience of solitude, adventure, and a sense of exploration for visitors traveling the Mojave Road. NPS rangers will patrol the road to offer emergency assistance and protect cultural and natural resources. The National Park Service will work to educate unprepared visitors about the rough character of the road. The primary guides for route finding will be the traditional rock cairns, along with maps, guidebooks, or other media.

Camping along the Mojave Road will be subject to management decisions made for roadside camping. Baseline information will be collected to determine use trends, the physical condition of the road, and conditions of natural and cultural resources adjacent to the road and at associated camping areas. When high use levels or inappropriate visitor behavior caused unacceptable impacts on the road or resources or negatively affected the quality of the visitor's experience, management actions will be taken to correct these problems. Standards for visitor use and resource conditions will be established after baseline information was gathered and evaluated in the backcountry or visitor use management plan.

Sand and Gravel for Road Maintenance

Background

Building materials (sand, gravel, and cinders), geothermal resources, and oil and gas on federal lands in the Preserve are not available for extraction or sale. There are no existing sites in the Preserve that are currently used for obtaining sand and gravel for road maintenance. Some previously used sites

do exist and need to be evaluated for reclamation potential.

Plan Actions

Use of borrow materials for road maintenance must conform to existing NPS policy, which requires materials to be obtained from sources outside the Preserve unless economically infeasible. The Preserve will allow the collection and stockpiling of material that washes onto roads during flood events for emergency use in repairing damage. This collection may occur in the active wash within 100 feet of the road centerline for the maintained paved and dirt roads, but only after a survey of the area certifies that no desert tortoise burrows would be harmed. Material accumulated on the active road surface may be reused or stockpiled without a survey. Stockpiling of such material may only occur at specified locations identified in the cooperative agreement.

Trails

Background

Few surface water sources in the Preserve are suitable to support extensive backpacking, but there are many opportunities for day hiking. There are two developed trails, one between the Mid Hills and Hole-in-the-Wall campgrounds, which is 8 miles one way. The second trail leads to Teutonia Peak from Cima Road and is 2 miles one way. Piute Canyon trail is an undeveloped trail, although an evident footpath established by use exists partway up the canyon. Cross-country hiking is also a traditional way of using the desert. Existing roads that are now included within wilderness areas are closed to use by mechanized vehicles, but open for hiking and equestrian use, including use by wheelchairs in accordance with NPS policy. All nonwilderness roads are open to hiking, bicycles, horses and licensed motorized vehicles.

A recreational driving trail also traverses the Preserve in several locations. The Heritage Trail is a collection of 660 miles of existing roads (mostly outside the Preserve) for which a series of guidebooks has been published to provide a recreational driving experience in the backcountry of the desert. This trail is still open for those visitors who prefer a driving experience in the backcountry, although some segments were affected by wilderness designation.

Plan Actions

The backcountry/wilderness management plan will address trail use by hikers, equestrians, bicycles, and visitors with disabilities. The plan will identify the

type and intensity of trail development, including the number of signs, trails, and trailheads, long distance trails extending into Bureau of Land Management or California State Parks and other jurisdictions, and anticipated maintenance levels for developed trails. The plan will be guided by the goal of increasing the diversity of recreational opportunities for the above activities in appropriate locations. Until completion of the plan, all trails will be open for use by hikers and equestrians, except where management problems were identified and restrictions needed to be established.

Previous roads that are now included within wilderness areas are closed to use by mechanized and motorized vehicles, but are open for other uses, including use by wheelchairs in accordance with NPS policy. During the trail planning effort, these roads will be evaluated for restoration or possible conversion to single track hiking trails.

Rights-of-way and Easements

Background

There are approximately 125 rights-of-way and/or easements within the Preserve. Some of these are entirely within the boundary, while others enter the Preserve and may terminate within or pass through the Preserve. Some of the existing rights-of-way and/or easements are listed below.

Plan Actions

Additional research and record checking over the next several years will be conducted in order to adequately document all the existing rights-of-way/easements and develop an administration plan. Mojave will convert existing rights-of-way to NPS standards and regulations wherever possible. If the right-of-way is no longer needed or its use is being converted to new technology, Mojave will seek to relocate the operation outside the Preserve. Abandoned rights-of-way will be restored by their holders. In addition, the NPS will develop a procedure to administer annual fee/rental collection. At present, the BLM collects and retains all annual fees/rentals associated with rights-of-ways/ easements in the Preserve. In some instances acquisition of the interest may be appropriate or warranted.

All proposed changes will be reviewed for impacts to the environment and all grantees of rights-of-way/easements will be educated regarding environmental concerns relevant to their authorized use. Agreements will be sought where necessary to protect Preserve resources.

Railroads

Background

The Union Pacific (UP) railroad line traverses the center of the Preserve for 91 miles, from Nipton, through Cima and Kelso, and to the southern edge of Soda Lake. This railroad right-of-way (ROW) is a 200-foot wide corridor that was granted by Congress in 1875. The railroad operates as a major regional freight corridor to southern California, servicing as many as 30 freight trains per day. UP also owns land in the Kelso Depot area and houses a small crew there in several mobile homes.

Passenger train service through the Preserve was discontinued by Amtrak in 1997. The line through the Preserve is currently a single set of tracks, with five sidings for passing located between Kelso and Cima. UP is currently pursuing permits to construct a second set of tracks parallel to the existing set, extending from Kelso Depot to Cima. This project would allow the return of passenger service from Los Angeles to Las Vegas, provided by Amtrak. Review of this double-tracking proposed is occurring under separate compliance.

Burlington Northern and Santa Fe railroad also operates a major railroad line that parallels the southern boundary of the Preserve in some locations. East of Goffs the railroad right-of-way forms the Preserve boundary, with the tracks outside the Preserve. This railroad does not enter the Preserve, but operations adjacent to the Preserve may impact park resources.

Plan Actions

If passenger train service resumes, the National Park Service will coordinate with Amtrak on the feasibility of placing NPS information and interpreters on trains and allowing passengers to stop at the Kelso Depot. The National Park Service will support the communities of Barstow, Nipton, and Primm in the establishing passenger train stops at these locations, with the anticipation of also establishing a stop at the Kelso Depot. Where feasible and appropriate, the National Park Service will also support the concept of using rail as an alternative form of transportation for visitors entering the Preserve.

The park will pursue cooperative agreements with both railroads to address issues such as spill response, emergency operations, permitting, maintenance of dikes that extend onto federal lands, use of pesticides and herbicides, and other relevant issues.

Roads

Most of the roads in the Preserve were constructed without rights-of-ways or easements being granted. The county of San Bernardino contends that all established roads in the Preserve are valid RS-2477 rights-of-ways. Revised Statute 2477 concerns rights-of-way established across public lands under the Mining Act of 1866. Although repealed by Congress in 1976 with enactment of the Federal Land Policy and Management Act, routes that existed prior to October 21, 1976 may "qualify" as an RS-2477 right-of-way. However, a right-of-way asserted under RS-2477 is not automatically assumed to be valid. Regardless of whether a party can successfully assert a valid claim to a right-of-way across national park land, the NPS retains the authority to regulate use of an RS-2477 right-of-way. See *U.S. v. Vogler*, 859 F.2d 638, 642 (9th Cir. 1988).

Wildlife Guzzlers

Background

Approximately 130 small game and six big game guzzlers were installed throughout the Preserve by agencies and interest groups over the last 60 years. The guzzlers were developed by the California Department of Fish and Game, the Bureau of Land Management, and volunteers before the area was designated a Preserve in 1994. The artificial waters were installed to enhance or replace natural waters for wildlife use.

A guzzler is a permanent self-filling water catchment. Most are similar to a cistern and are simple, low-maintenance devices that are essentially tanks filled by rain-collecting aprons (Giles 1971). Guzzlers are installed and used to provide water for hunted species in arid areas. Nongame species such as reptiles, songbirds, and insects also use these manufactured devices. Birds enter the covered tank through an opening and walk down a ramp to the



water. For bighorn sheep, piping extends from the storage tank to a drinking trough, which has a float valve to regulate the flow.

Plan Actions

The National Park Service will examine the use of and need for all big game and small game guzzlers. Guzzlers will be retained for native wildlife if they are found to be necessary to replace water lost due to actions taken by previous human activities. These developed water sites will be retained to allow native populations of plants and animals to return to or remain at a previously undisturbed population level. Simultaneously, with the retention of these developed water sites, the National Park Service will actively begin to restore natural water sources to be self-sustaining. When a water source becomes self-sustaining, the artificial facility will be removed. The National Park Service has no jurisdiction over developed water sites on private land. The park will modify existing water developments (mostly small game guzzlers) to prevent desert tortoise from gaining access and to ensure they are able to escape from them.

Motorized access to guzzlers in wilderness will be considered extraordinary and will not be routinely allowed unless unusual circumstances warrant it. These instances will be considered on a case-by-case basis. A minimum tool determination will be used prior to granting approval for motorized/mechanical equipment use within wilderness. Mojave National Preserve will follow the "Principles for Wilderness Management in the California Desert," the Wilderness Act, and the California Desert Protection act in the administration of the park's wilderness areas. Routine access for monitoring purposes will be by foot or horseback. Each water development in wilderness will also be examined in light of the restrictions in the Wilderness Act on structures and installations.



Ranching Developments

Background

Developments associated with ranching operations have been installed throughout the Preserve over the last 100 or more years. Hundreds of miles of barbed wire fences and water pipelines, as well as dozens of cattle guards, windmills, water tanks, troughs, corrals, earthen reservoirs, houses, barns, sheds and other structures exist to support the ranching operations. Maintenance of most of these facilities is the responsibility of the rancher who benefits from their use. Water is necessary for live-stock grazing on NPS lands and these waters are controlled by the rancher to facilitate movement of livestock. Some fences, water tanks, pipelines and windmills are the responsibility of the NPS, the county or Caltrans (along I-15 and I-40) and are maintained by those entities. A partial inventory of these developments exists, but additional work remains to ensure the completeness and accuracy of the mapping and database.

Plan Actions

During the grazing management plan development, specific detailed lists and maps of the locations, ownership and maintenance responsibility of all these developments will be prepared.

If and when a grazing permit is purchased by a third part and donated to the NPS for retirement, most ranching developments will be removed following cultural resource inventory and analysis. Some of these developments may be retained as important features of the ranching history of the area. Others may be retained if necessary for other park resources management projects (i.e. burro removal or a park horse operation), park housing or administrative use.



Use of the Preserve

The National Park Service Organic Act directs the Service to preserve park resources “unimpaired,” while providing for public enjoyment of those resources. Because public enjoyment cannot be sustained if park resources are damaged or compromised, resource protection must necessarily be the Service’s paramount responsibility. Within that constraint, the Service recognizes its obligation to provide for a broad range of educational, healthful, enjoyable, and otherwise appropriate activities that foster a continuing public appreciation for park resources and values.



CARRYING CAPACITY

Park managers are often faced with decisions about how much use of a particular area is appropriate, given the need to protect resources. Decisions regarding buildings, such as museums and historic structures, are usually dictated by law and the physical capacity of the space to contain people. Visitors face these limits everywhere they go and they are widely accepted. Similar decisions regarding natural spaces are not as easily derived, nor readily accepted. Most people understand that there is a need to limit the number of people that can float the Colorado River at the same time, in order to preserve the experience. However, determining how many people can use a particular area of the park without impacting resources or other visitors experience is often more difficult.

A widely accepted definition of carrying capacity is:

“the character of use that can be supported over a specific time by an area developed at a certain level without causing excessive damage to either the physical environment or the experience of the visitor.”

There are three principal components that relate to determining the carrying capacity for a national park:

The ecological or physical capabilities of the natural and cultural resources to sustain certain levels of visitor use without reaching unacceptable levels of damage. Each landscape may have varying abilities to absorb different kinds of and levels of visitor use before unacceptable levels of impacts occur.

The sociological carrying capacity is the ability of visitors to enjoy and appreciate these resources without interference by other visitors. Determining social carrying capacity can be one of the most difficult parts of the three components. Sheer numbers relating to visitation in an area are not a valid determinant of a quality visitor experience. Other factors such as visitor behavior, preconceived expectations and social norms of the dominant user group can affect visitor enjoyment.

The type and amount of NPS management that has been, or can be applied to the activity to mitigate unwanted impacts are also a factor. This component relates to the management of such things as roads, parking lots, buildings, trails, and visitor information. For example, providing interpretive services is an effective way to instill in the visitors an understanding and appreciation for the park resources. Such understanding helps implement carrying capacity for a particular area. Limiting parking in certain areas can effectively limit visitation.

General management plans provide NPS managers with management direction on a broad, prescriptive level. Management objectives for carrying capacity are thus written as narrative statements. These statements define the desired future visitor experience and resource conditions in qualitative terms such as “sense of seclusion,” or “low degree of tolerance for resource degradation.” These qualitative descriptors, which have been identified as “desired visitor experience and resource conditions,” would be refined and translated into quantitative standards during future implementation planning. As previously mentioned indicators and standards of quality for both the physical and social environments would be developed within future implementation plans. These products would be quantifiable and measurable aspects of the carrying capacity process. Mojave would undertake data-gathering efforts, including visitor surveys, to help define the visitor experience and resource protection goals that should define the carrying capacity of the Preserve.

Existing Land Uses and Desired Future Conditions

Mojave National Preserve is a large expanse of natural Mojave Desert ecosystem. Managing the area to preserve this system as a self-sustaining environment where native species thrive is our overall management goal. Mixed throughout this environment are existing land uses, both historic and present day, as well as special management areas (wilderness, critical habitat, state park, etc.). Some of these land uses are important for providing visitor access (roads), help tell the story of human use and occupation, or protect sensitive resources such as desert tortoise critical habitat. Some existing land uses (pipelines, electric transmission lines, telephone relay sites, antennas, billboards, etc.) do not conform well with our preservation mission and management goals, but are authorized pre-existing uses. These are identified here to recognize their existence as non-conforming uses that dissect the park and at times may interfere with the visitor experience.

Desired future conditions for natural and cultural resources and the visitor experiences are described below. The descriptions are qualitative in nature and can be translated into quantitative standards over time during the implementation of this plan. Some descriptions could be applied to broad areas such as wilderness, while others apply to smaller areas such as road corridors and points of development. These descriptions serve as guides for managing the land and facilities to achieve desired carrying capacities.

Natural Environment

The vast majority of Mojave National Preserve is a natural Mojave Desert ecosystem. This desired future condition could be thought of as the primary land use or zone that underlies all the subsequent use descriptions that follow. Except for developed areas (roads, railroads, visitor centers, campgrounds, etc.) the desired future conditions for the natural environment are the ground floor conditions that all the other land classifications build upon. **Natural Areas, Wilderness, desert tortoise critical habitat and the Granite Mountains Natural Reserve are all components of the natural environment** where resource protection standards and visitor experience are altered by additional laws and management goals for these areas.

Natural Areas. Natural areas of the Preserve that occur outside of designated wilderness provide an informal, self-guided desert learning experience for visitors. People are encouraged to get out of their

vehicles and walk to features. The pace is slow with low to moderate levels of noise. Visitors typically focus on specific resources with few visual intrusions. Visitors experience a sense of learning through onsite interpretation or other means.

The length of stay at each site is relatively short in comparison to the time visitors spend in the Preserve. There is a moderate amount of social crowding and moderate interaction at points of interest and along dead-end trails. Guided ranger walks are occasionally provided for visitors at some locations. Development is limited to items such as low interpretive panels, small directional signs, and hardened dirt paths. Fences are used as a last resort to protect resources if other management efforts do not work. The tolerance for resource degradation is low to moderate, depending on the sensitivity of the resource. The degree of onsite visitor and resource management is moderate and increases or decreases with visitation levels.

Wilderness. Wilderness as a desired future condition, is a subset of the natural environment, where protection of the natural values and resources is the primary management goal. Restrictions on use of these areas are imposed by law and policy in order to provide a primitive environment free from modern mechanization and motorized travel.

Visitors in this landscape experience a primitive environment largely untouched by people. Remnants of human occupation within wilderness areas that are either on or eligible for the National Register, will be identified, protected, and preserved as part of the desert landscape. However, for purposes of protection and because the desired future condition is maintaining the wilderness values (as required by the Act), little to no effort would be made to direct visitors to these historic resources. Within Mojave National Preserve's wilderness area the level of physical exertion required to hike or ride horseback into the area varies from an easy walk to a strenuous trek. A minimal number of hiking trails are present, often requiring a person to travel cross-country to get to a desired destination. Abandoned roads may also be used as routes of travel. Some restoration of pre-existing roads, mines, and dumps will likely occur as cultural and natural studies are completed. Opportunities for independence, closeness to nature, tranquility, and the application of outdoor skills are high. Opportunities for social interaction with other visitors are low, as is the probability of encountering NPS employees. Likewise, evidence of other visitors is minimal.

The landscape offers a high degree of challenge and adventure for visitors. The visual quality of the landscape contributes significantly to the visitor experience and needs to be protected. The tolerance for resource degradation is low, with the exception of designated trail corridors, where a slightly higher level of degradation is allowed within a few feet of the trail and at points where camping occurs. A minimal amount of resource and visitor management is present. Offsite visitor management (provision of information) is low to moderate.

Desert Tortoise Critical Habitat. Desert tortoise critical habitat was formally designated by the U.S. Fish and Wildlife Service in 1994 and identifies those areas of the Preserve known to contain the best quality tortoise habitat at that time. Desert tortoise critical habitat overlays both wilderness and natural areas, and is a subset of the natural environment, where protection of natural values and resources is primary. However, it is dissected by roads and utility corridors. These areas are managed for protection of the desert tortoise and their habitat.

Visitors in this landscape encounter the same general conditions and experiences as described above for the natural environment and wilderness, depending on the particular location. They may also encounter developed areas, roads, railroads, utility corridors or historic features. This subset of the natural area provides the best opportunities for observing and learning about desert tortoise habitat, life history and threats.

Granite Mountains Natural Reserve. The Granite Mountains Natural Reserve is a 9,000-acre area that overlays both wilderness and non-wilderness areas. Wilderness designation over the majority of the Reserve prevents the use of mechanized equipment and motorized vehicles. It is a natural environment where continuation of arid lands research and educational activities on desert ecosystems is assured by legislation. The area is co-managed by the National Park Service and the University of California under a cooperative agreement. The area is mostly undeveloped, with only a single trail access corridor along an old mining road. The university has a few administrative support buildings on their property.

Visitors to this area encounter the same general conditions and experiences as described above for natural environment and wilderness. Additional restrictions on recreational visitor use may be applied as necessary to ensure protection of long term research areas.

Developed Areas

Mixed throughout the natural environment are existing land uses, both historic and present day. Some of these land uses are important for providing visitor access (roads), help tell the story of human use and occupation or provide facilities for visitor enjoyment. Unlike non-conforming uses, these developments are considered an important part of the Preserve and are managed as such.

Historic Preservation Areas. Historic preservation areas offer visitors a chance to gain a sense of the past by using as many of their senses possible without compromising the integrity of the resource. Often there are opportunities to learn by vicariously experiencing the emotions and thoughts of those who lived in the past. The experience is often a visual one, with feelings gained by physical spaces, smells, and sounds adding to the whole experience. Interpretive information adds color and meaning to the experience.

The degree of tolerance for resource degradation is low for historic resources. The chance of seeing other visitors and having social interaction is potentially high, depending on the degree of public access and visitor interest. The opportunity for contact with NPS personnel is high where ranger-led tours are offered. Visitor behavior is managed to protect the character of each place. NPS onsite management is high at sites with high visitation and impact sensitivity. Paved walks, fences, and interpretive panels are used as needed to accommodate public access and interest in accordance with the Secretary of the Interior's Standards for Rehabilitation. If interest is high, improvements may be needed to allow visitors to experience these resources while protecting them from visitor use impacts. Improvements must not distract from the significance of each location. Some features are convenient and easily accessible with little need for visitors to exert themselves, apply outdoor skills, or make a long time commitment to see the area. Some features are at remote locations and would require more effort and skill to experience. Adventure is often a part of the visitor experience at these places. The way in which people currently gain access to these locations should remain unchanged since this experience contributes to resource protection and its appreciation. Changes in access should only be made if there is strong justification to do so. Remote locations should provide a primitive setting with opportunities for solitude, exploration, and learning with minimal amounts of human intervention such as signs or interpretive panels.

Visitor and Administrative Facilities. The visitor experience in these areas is heavily influenced by structures and other fabricated features, and they are part of the visitor experience. The pace is varied, with opportunities to walk and drive. The site often is noisy with vehicles and people nearby. Visitors have opportunities to hike, learn about resources, and receive many services from facilities. Visual distractions from other visitors and their vehicles are common and expected. Buildings and other facilities are predominant, but where exceptional natural elements or cultural elements are present, they are part of the visitor experience. The constructed features are coordinated by design to reduce the visual contrast with the natural or cultural setting. Although these are developed areas, they still offer a contrast from urban life and a chance to relax and enjoy the outdoors.

Most facilities are convenient and easily accessible by the public with little need for visitors to exert themselves, apply outdoor skills, or make a long-time commitment to see the area. Opportunities for adventure are relatively unimportant. Many areas provide a strong opportunity for social interaction. Encounters with NPS staff are frequent. The tolerance for social crowding is high but there are opportunities to learn and experience a change in pace from city life. Most facilities are accessible to visitors with disabilities. Resource impacts at visitor facilities are as low as possible, occurrences only when there is no practicable alternative. Visitors and facilities are intensively managed for resource protection, visitor management, and safety (that is, there are fences, law enforcement is intensive, and visitor activities are monitored or restricted).

Paved and Maintained Dirt Roads. Paved and maintained dirt roads are the dominant experience for most visitors. Visitors use these narrow corridors and roadside pullouts for touring, enjoying scenic overlooks, and gaining access to natural and cultural features. While traveling, visitors may read about and understand the features they are seeing. Bicycle travel is allowed, but motorized vehicles are more common. Viewing the scenery is very important, but the views are often of distant landscapes. Vistas are protected. First-time visitors may have a sense of exploration, but little physical exertion is needed, and outdoor skills are not necessary. Visitors may spend a long time in this zone. The probability of encountering other visitors is high, although chances for social interaction are low except at roadside pullouts. The opportunity for direct contact with NPS staff is low unless visitors seek out assistance at visitor centers or while engaged in a consumptive resource activity such as hunting and mining.

A moderate to high level of NPS management (highway signs, visitor protection) is needed to provide visitors with a safe and enjoyable experience. Because maintenance work and driving off roads can cause dirt roads to grow wider, it is necessary to specify maximum road widths and approved pullouts. Roads are limited to specified widths unless where strong justification exists. Resources can be modified for essential visitors and administrative operational needs. The tolerance for resource degradation in these corridors is moderate. Allowable impacts are restricted to a short distance from roads and pullouts.

Unmaintained Dirt and Four-Wheel Drive Roads. Unmaintained dirt roads provide a unique experience for drivers and other users such as mountain bike riders, equestrians, and hikers. The predominant use is by visitors in vehicles driving to enjoy the unique desert environment, or to go to historic mining sites, or to a specific feature. Some visitors experience a strong sense of exploration, challenge, and adventure. Travel speeds are slow to moderate, with the potential of frequent stops. Many of these roads offer a sense of backcountry travel and give visitors a sense of escape from urban life. The areas through which these roads pass are predominantly natural, but there is evidence of people having used the area in the past and present. Increased impacts from human use are prevented to protect the existing qualities of the landscape. Support features such as small directional signs or interpretive panels are present but infrequently seen and inconspicuous in character.

Visitors need to extend themselves, use outdoor skills, and make a large time commitment. Some roads with rough conditions require specific vehicles with 4x4 driving skills and more time to complete the route. Opportunities for challenge and adventure are available on some 2-wheel drive roads that require high clearance vehicles. Opportunities for social interaction are low, unless people are traveling in a group.

A moderate level of management is provided on heavily used roads to protect resources and visitors. Most people who use these roads do not want to see many other vehicles. Speed limits will be enforced using radar and other law enforcement techniques.

Resource modification is evident, but where possible, it harmonizes with the natural environment. The Preserve's tolerance for resource degradation in

this zone is low except that limited signs, road surfaces and shoulders, pullouts, and camping areas are permitted. It is recognized that some 4-wheel drive roads have a number of short sections that have been widened through natural occurrences such as washouts.

Non-Conforming Uses. Some existing land uses (pipelines, electric transmission lines, telephone relay sites, antennas, billboards, etc.) do not conform well with the NPS preservation mission and management goals, but are pre-existing uses. These are identified here to recognize their existence as non-conforming uses that dissect the park and at times may interfere with the visitor experience. The management philosophy towards these developments is to minimize their intrusion and manage towards their eventual elimination, either through technological improvements or acquisition. Many of these uses will likely remain intact throughout the life of this plan, but as opportunities arise to minimize or eliminate them, the park would work towards that end.

RECREATIONAL ACTIVITIES

Background

Mojave National Preserve has long provided recreational opportunities for people from all over the world. Its nearness to major population centers such as Los Angeles and Las Vegas, combined with major interstate highways, gives residents the opportunity for relatively easy access to many parts of the desert. Most of the landscape is open, with broad vistas of relatively undeveloped land. The vastness of the landscape offers visitors an opportunity for seclusion and a sense of wilderness, even while in a vehicle. Early miners and ranchers developed roads that today offer visitors a chance to drive into many remote locations where informal camping has traditionally occurred. There are several major sand dune systems. Hikers play on and explore the Kelso Dunes. There are many cultural sites such as abandoned mining districts, which many people love to visit. The mountain ranges, such as the New York and Providence Mountains, offer a contrast to the dry hot valleys, attracting many people in summer with cooler temperatures and forested areas. Volcanic cinder cones, lava flows, rock outcrops, and unique wildlife and vegetation are other elements that attract people. The land has many extremes and contrasts that people come to experience, such as the high summer temperatures. Most visitors come to the desert simply to see the outstanding scenery of this diverse landscape.



Most visitation to the Preserve occurs between October and May. It is estimated that 72% of overnight visitation occurs at this time. In July 1996, 12,842 vehicles entered the Preserve, compared to 14,617 in March 1997. While the numbers are very close, relatively few people stay more than a few hours in the summer. Campground use statistics show a different picture of summer visitation. During July 1996 there were 35-user days, and during March 1997, there were 1,412. These numbers reflect use of all developed campgrounds. Campground use has increased over the years; the Bureau of Land Management recorded 960 user-days during April 1991; while the National Park Service recorded 1,252 in 1996 and 1,500 in 1997. These numbers may reflect having campground hosts and different BLM and NPS collection processes.

Visitation to the Preserve over the life of this plan could increase by 50–60 percent (assuming 3–4 percent increase per year), resulting in an annual visitor increase of perhaps 200,000 visitors by 2016. These projections are based on our local experience since 1994, and the trends reflected nationally at NPS units.

The 1997 visitor study revealed that 64% of the visitors were from California and 11% were from Nevada. Most people started from Las Vegas, Nevada or from Twentynine Palms or Barstow, California on the day of their visit to the Preserve. There may also be a large number of visitors who are taking a scenic route between Joshua Tree National Park and Death Valley. The most concentrated use periods are the first two or three weekends of the upland bird and deer seasons in October and November, and the Thanksgiving and Easter weekends. April had the highest visitation record of any month during 1996.

Many residents of adjacent communities such as Needles, Laughlin and Bullhead City come to the higher elevations in the Preserve during the summer

to escape the heat and enjoy a change of scenery. Most visitation to the Preserve occurs on weekends when residents of California, Arizona and Nevada arrive. Daytime recreational use is expected to continue to increase as the populations of Clark County and Laughlin, Nevada, Bullhead City and Kingman, Arizona, Barstow and Needles, California continue to grow.

Traffic counters and field observations indicate that many people are using roads in the Preserve as a route between Las Vegas and Twentynine Palms. Most use in the Preserve is sightseeing and driving for recreation, but the diverse landscape offers many other forms of recreation including activities such as hunting, nature study, rock-climbing, mountain biking, exploring by 4WD vehicle, and hiking.

Plan Actions

It is recognized that recreational trends continue to change and that specific, detailed directions on certain activities need to be placed under a guiding statement providing overall direction. NPS *Management Policies* provides guidance for determining the appropriateness of recreational activities in units of the national park system.

Unless the activity is mandated by statute, the National Park Service will not allow a recreational activity within a park if it will involve any of the following results:

- inconsistency with the park's enabling legislation or proclamation or derogation of the values or purposes for which the park was established
- unacceptable impacts on visitor enjoyment due to interference or conflict with other visitor use activities
- consumptive use of park resources (does not apply to certain traditional activities specifically authorized by NPS general regulations)
- unacceptable impacts on park resources or natural processes
- unacceptable levels of danger to the welfare or safety of the public, including participants

NPS *Management Policies* also states that each unit of the national park system is responsible for determining which recreational activities are appropriate or inappropriate, based upon the unit's purposes and values (see the purpose and significance statements for Mojave National Preserve).

Rock-Climbing

Background

There are potential or actual rock-climbing resources in the following areas: Clark Mountain, the Granite Mountains, the New York Mountains, Mid Hills, Teutonia Peak, and the Hole-in-the-Wall area. With the exception of Clark Mountain, these locations are lightly utilized for technical rock-climbing, and contain few fixed anchors (climbing bolts and other devices not removed after each climb). The climbing areas at Clark Mountain, Teutonia Peak and the New York Mountains are within designated wilderness. Climbing areas at Mid Hills and Granite Mountains are both within and outside wilderness, and potential climbing at Hole-in-the-Wall is outside wilderness.

Access to the climbing resources at the Granite Mountains, New York Mountains, Mid Hills, Teutonia Peak, and Hole-in-the-Wall requires a variety of two-wheel drive, high clearance, and four-wheel drive vehicles depending upon one's destination. In addition, accessing all these areas requires hiking. Hole-in-the-Wall is the most accessible resource, requiring only a two-wheel drive vehicle, and a short, easy hike. Climbing in the New York Mountains is likely the most remote, requiring a four-wheel drive vehicle and long, strenuous hiking to the mountain's upper elevations.

Mojave has a substantial, high-quality climbing resource at Clark Mountain. Visits by park staff, personal communications, and lay publications suggest that the Clark Mountain area provides numerous climbing routes at a high degree of difficulty. Most or all of these routes rely on bolts for protection. It is unknown if more routes have been developed. The use of a high-clearance, four-wheel drive vehicle is necessary to reach the Clark Mountain trailhead. Accessing the various climbing routes requires 30 to 90 minutes of strenuous hiking and rock scrambling. The climbing area on Clark Mountain also lies completely within designated wilderness.

Plan Actions

The management goal will be to allow climbers to enjoy their experience with a sense of challenge in a manner that will leave the environment relatively unchanged and not impacted, allowing future climbers an opportunity for a similar experience. Climbing will be managed for the following objectives:

- protecting cultural resources such as rock art and historic or prehistoric sites

- protecting natural resources, including threatened and endangered plants and animals
- protecting wilderness resources and values from visual and physical impacts
- protecting the outdoor recreational experiences of visitors not participating in rock-climbing
- developing an open communication line with the climbing community to promote a spirit of cooperation in achieving objectives and resolving problems
- promoting clean climbing methods and environmentally-friendly climbing equipment
- All wilderness areas within Mojave will be closed to any further placement of new bolts and other types of fixed anchors. Fixed anchors in wilderness will only be allowed if they currently exist (at the time of the signing of the general management plan), if they are placed as a rappel anchor at the top of a route, or if they are an in-kind replacement of an existing bolt or anchor for safety purposes.
- The area immediately behind and within sight (within 500 feet) of the Hole-in-the-Wall visitor center will be closed to technical rock-climbing, including the placement of permanent climbing anchors.
- Mojave will study climbing impacts on sheep, and if warranted, close climbing at Clark Mountain during sheep lambing season.

The National Park Service will seek ways to educate the public on proper climbing ethics and outdoor skills such as those promoted by the National Outdoor Leadership School's "Leave No Trace" program for climbing. Mojave will work with groups such as the Access Fund to educate the park's climbing community. Mojave will monitor rock-climbing use levels and related activities in the coming years to determine the effectiveness of current management in achieving the previously mentioned goals and objectives.

Power drills will not be allowed in the Preserve at any time. Chipping of rock faces and gluing of holds onto the rock will be prohibited, as will intentional removal of vegetation from climbing routes. Climbing will not be permitted within 500 feet of any prehistoric or historic rock art site or other cultural resource.

Existing bolts and other fixed anchors that are deemed unsafe by climbers could be replaced on a piece-by-piece basis. Replacement of existing bolts

will be accomplished in a manner that removes the old bolt with minimum damage to the rock. Whenever possible for the safe replacement of an existing bolt, the existing bolt hole will be utilized for the replacement bolt. If use of the existing hole is not possible, the old hole will be filled with a natural colored rock material blended with bonding agents to permanently fill the hole.

The NPS will require that all bolts and other fixed anchors, chalk, slings, quick draws, and any other piece of equipment that will be left on the rock for an extended period, be of an environmentally-friendly color. Leaving fixed ropes for extended periods for the purpose of ascending and descending (rappelling) rock walls is not allowed.

The Clark Mountains are also heavily used by desert bighorn sheep. Questions exist as to the potential for climbers to impact the Clark Mountain sheep population, especially during lambing season (February–June). Mojave will study climbing impacts to sheep, and if necessary, impose seasonal closures to Clark Mountain in order to protect the bighorn. The study itself could include a temporary closure on visitation to Clark Mountain to serve as a scientific control period.

Those lands in the Granite Mountains Natural Reserve that are owned by the University of California are dedicated to the purposes of scientific study and education. The university prohibits rock-climbing on their lands because they consider this use to be incompatible with their scientific mission and due to the potential for damage to long-term research plots.

The NPS will discourage multiple social trails and heavily impacted zones at the base of climbs, and will employ barriers, revegetation, and possible closures as a means to prevent these impacts. Mojave may close any area, rock feature, or climbing route to protect wildlife, natural or cultural resources, or wilderness experiences. NPS authority for closures is granted in 36 CFR 1.5.

Hunting, Fishing, and Trapping

Background

The California Desert Protection Act permits hunting, fishing, and trapping on lands and waters within the Preserve in accordance with applicable federal and state laws. However, the Secretary of the Interior may designate areas where, and establish periods when, no hunting, fishing, or trapping will be per-

mitted for reasons of public safety, administration, or compliance with provisions of applicable law. The National Park Service authority extends not only to federal lands, but to private inholdings and adjacent private land where activities carried out on those lands interfere with the designated use of the federal lands. The National Park Service consults with the California Department of Fish and Game prior to the NPS designation of closed seasons or areas.

Hunting on federal and all private lands within the Preserve is allowed and administered by California Department of Fish and Game and NPS regulations. Commonly hunted game species include mourning doves, quail, chukar, rabbits, bighorn sheep, and mule deer. Nongame species are also hunted within the Preserve. These game and nongame species are not uniformly distributed in the Mojave National Preserve. The bighorn sheep prefer steep, mountainous, open terrain; the Rocky Mountain mule deer's preference is high elevation Great Basin habitats; and the game birds' habitat of choice is near springs or guzzlers.

Mojave National Preserve is one of the few places in California where bighorn sheep hunting is allowed. Limited hunting of bighorns began in 1987 (BLM 1988). A limited number of permits to hunt bighorn sheep are issued each year through a lottery system. One other permit in addition to the permits issued by the lottery system is awarded each year to the highest bidder, allowing him/her to hunt one animal.

Chukar have been introduced throughout most of the Preserve. Rocky Mountain mule deer were introduced in the New York Mountains of the Preserve in the late 1940s (see "Introduced Species" section).

Plan Actions

Section 506(b) of the CDPA provides for hunting, fishing and trapping within Mojave National Preserve, in accordance with applicable Federal and State laws. Congress also clearly provided the NPS with a mandate in our 1916 Organic Act, to preserve wildlife, and other resources within park units. They also reiterated in the CDPA our mandate to preserve wildlife by affording the new Preserve full recognition and statutory protection to establish periods when, no hunting, fishing, or trapping will be permitted for reasons of public safety, administration, or compliance with provisions of applicable law.

Therefore, it is appropriate to recognize public safety and resource protection issues and to balance the mandate from the CDPA with the NPS resource

preservation and visitor enjoyment mission. The goal is to provide better protection to desert tortoise and other park resources and to enhance visitor safety. It is also to strike a balance with the mission of the park, which is preservation of resources. The NPS goal is to provide opportunities for hunters to take game species during the fall and winter, while also providing a park experience with no hunting or shooting during the spring and summer.

Hunting will follow California Department of Fish and Game (CDF&G) regulations. The Preserve will seek the following special regulations:

- In accordance with the Desert Tortoise Recovery Plan hunting would be limited to upland game birds (mourning dove, quail, chukar), cottontails, jackrabbits, and big game (deer and bighorn sheep) during their designated CDF&G seasons. Cottontails and jackrabbits may be hunted only from September through January.
- The hunting season for the Preserve will be from September 1 to January 31 (except through the first Sunday in February for bighorn sheep). This is the same season as the Providence Mountains State Recreation Area (Section 260.1 California Hunting Regulations, 1999).
- Use of hunting dogs will be allowed in accordance with State hunting regulations, and to protect visitors and wildlife, dogs must be in the owner's control at all times.
- For public safety, shooting of rifles will not be allowed within one mile of Kelso Depot and Kelso Dunes.
- CDF&G regulations regarding shooting near public buildings and paved roads would apply.
- Target or random shooting (plinking) is not allowed anywhere in the Preserve.

Trapping within the Preserve will follow California's 1998 Proposition 4 to the extent that it does not conflict with federal wildlife management. In very limited circumstances the superintendent will allow trapping by designated individuals to remove (trap or shoot) animals that are a hazard to visitors or park resources under the authority provided by 16.U.S.C.3.

The collection of amphibians and reptiles with a fishing license will not be allowed in Mojave National Preserve since it is in conflict with administration of the area. Fishing will follow existing CDF&G fishing regulations, except the collection of nongame birds, reptiles, amphibians, and inverte-

brates will not be permitted without a valid NPS scientific collection permit issued under NPS regulations (CFR 36 2.2 b.4 & 2.5.a).

Hiking

Background

Many opportunities for day and overnight hiking exist. There are two developed trails: one between Mid Hills and Hole-in-the-Wall campgrounds, and the second a two-mile roundtrip to Teutonia Peak from Cima Road. There are other hiking opportunities — an abandoned road in Caruthers Canyon leads to an old gold mine, Kelso Dunes, and a trail in Piute Canyon leads along sections of the original Mojave Road and into the wash and eventually ends at Piute Gorge. Several former roads now in wilderness areas are closed to vehicle use; such roads may offer opportunities for hiking into Cow Cove, Castle Peaks, and other areas.

Plan Actions

Hiking is encouraged throughout the Preserve, both on developed trails and cross-country. Groups and organized events will need to obtain a permit. The backcountry/wilderness management plan will address trail use by hikers, equestrians, bicycles, and visitors with disabilities. The plan will be guided by the goal of increasing the diversity of recreational opportunities for the above activities in appropriate locations. Until completion of the plan, all trails will be open for use by hikers and equestrians, except where management problems were identified and restrictions needed to be established.

Equestrian Use

Background

Horseback riding occurs in the Preserve at several locations. A group called the East Mojave Scenic Area Trail Riders has defined routes out of the Hole-in-the-Wall area that lead into Round, Pinto, Gold and Lanfair Valleys. Watson and Woods washes also serve as routes to Caruthers and Black canyons. Trails often follow old roads or washes or go cross-country. These routes are not marked by signs, so the experience of using them is an informal adventure. The amount of use is unknown at this time.

Plan Actions

All trails will be open for use by hikers and equestrians, except where management problems were identified and restrictions needed to be established. Horses may also travel cross-country. Groups and

organized events will need to obtain a permit. Large horse groups may be restricted to existing roads.

Bicycling

Background

Mountain bike use in the Preserve is unknown at this time. Bicyclists have recorded their names in the Mojave Road register, indicating their use of this route. Mountain biking is the third fastest growing equipment-related outdoor activity in the country, as of 1995. Offroad ridership has increased nationally by 20% every year since 1990. In 1995, an estimated 2.5 million to 3 million of those riders were classified as avid trail cyclists.

Plan Actions

Bicycles will be allowed on all open roads, but not on single-track trails, in wilderness, or off existing roads. The backcountry/wilderness management plan will consider the feasibility of designating dirt roads as bicycle routes. Groups and organized events will need to obtain a permit.

Motorcycles and ATVs

Background

Occasional illegal use occurs on the Kelso Dunes and the Soda Lake area, adjacent to the BLM's off highway vehicle area at Rasor. The Preserve has undertaken a number of activities to try and eliminate these illegal uses. Street legal motorcycles do utilize park roads regularly, including both pavement and backcountry dirt roads. Organized groups have been permitted to ride the Mojave Road.

Plan Actions

Street legal and licensed vehicles are permitted on roads in the Preserve, when operated by a licensed driver in accordance with State law and NPS regulations. All terrain vehicles are not permitted on any paved roads in the Preserve. Motorcycles must have mufflers that permit normal conversation when the engine is idling. Groups and organized events will need to obtain a permit.

Aircraft

Background

There are no designated airstrips in the Preserve on public lands.

Plan Actions

Landing of aircraft on roads, dry lakes, or other

areas of the Preserve is not allowed. Use of private aircraft must be in accordance with FAA regulations, which provide for a recommended minimum altitude over parks of 2,000 feet.

Backcountry Use and Roadside Vehicle Camping

Background

Camping out of a vehicle has always been permitted in the Mojave, and has continued since the National Park Service began administering the area in 1994. This activity has resulted in an unknown number of traditionally used backcountry roadside campsites scattered throughout the Preserve. Roadside vehicle camping is allowed at previously disturbed campsites outside of wilderness. No improvements (such as trash containers or metal fire rings) have been made to these sites, although several contain rock fire rings.

Several abandoned structures exist on public land in the backcountry of the park and some have traditionally been used by the public for overnight camping. A good example is the Winkler Cabin off of Wildhorse Canyon road. This small, one room shack is maintained and stocked with basic emergency materials by the users. The park has not inventoried all of these structures nor determined their historic significance and value.



Plan Actions

Roadside vehicle camping will continue to be allowed only in previously used areas along open routes of travel, outside of wilderness. Vehicles may not leave the road surface at any time or park on vegetation. There are many of these existing campsites along dirt roads.

Mojave will inventory previously used campsites and prepare a backcountry/wilderness management plan that may provide additional restrictions. Until the plan is completed, the Preserve will manage roadside camping with the following conditions:

- Roadside camping will be allowed in previously used sites outside the no camping areas.
- Campsites must be more than 200 yards from any natural or constructed water source.
- Groups and organized events will need to obtain a permit.
- Vehicles must remain in previously disturbed areas. The creation of new campsites will not be allowed. Driving off roads will not be permitted.
- Campfires will be allowed in existing fire rings, or in a fire pan. Visitors are not allowed to collect firewood in the Preserve.
- Backcountry structures on public lands will remain available to the public on a first come basis.

Backcountry campers may camp anywhere in the Preserve outside of designated day use only areas but must erect their tent out of sight of paved roads.

Camping in High Use Areas

Background

Although some information is available to identify potentially heavily used sites such as Caruthers Canyon, Cima Dome, Cinder Cones, Clark Mountain, Granite Pass (Kelbaker Road), and Grotto Hills, no systematic inventory of site conditions and use exists. Certainly some sites along the Mojave Road are routinely used because they have been used by organized groups for years, and/or are identified in the guidebook as good camping areas.

Plan Actions

It is proposed that designation and marking of specific campsites in locations that are consistently heavily used by individuals or groups be undertaken. Resource conditions and visitor use will be monitored to determine the need for designating sites such as Caruthers Canyon, Cima Dome, Cinder Cones, Clark Mountain, Granite Pass (Kelbaker Road), and Grotto Hills. Other locations could be identified as information on visitor use is gathered. Campsites will be marked for easy identification, but other improvements will be avoided unless they will help protect resources.

Camping in Desert Tortoise Critical Habitat

Background

An inventory of previously used roadside camping sites that exist in desert tortoise critical habitat has not been compiled.

Plan Actions

In sensitive areas designated as critical habitat for the desert tortoise, vehicle-based roadside camping will be confined to a limited number of designated campsites with metal fire rings or campsite markers to identify them for use. Previously used areas will be considered first for designation. The designation of campsites will come after an inventory of natural and cultural resource conditions and existing campsites to determine the best locations.

The primary issue with roadside vehicle camping is to ensure that visitors do not disturb tortoises they encounter and, to prevent tortoises from being crushed, ensure that campers inspect underneath their vehicles before moving them to ensure tortoises have not crawled under them for shade. The park literature on camping in the backcountry will be modified to include information about the desert tortoise and actions the public should take when camping in desert tortoise habitat.

No Camping Areas

Background

Certain areas are designated to prohibit roadside vehicle camping to protect the Preserve's natural and cultural resources, protect the viewsheds, and reduce conflicts in visitor activities or other management objectives.

Plan Actions

The following areas will be designated as no camping areas to avoid potential conflicts between recreational day visitors and overnight campers.

- All areas within ¼ mile of paved roads, unless formally designated as a camping area.
- The access road to the Kelso Dunes, the parking lot, and the area north of the road to the crest of the dunes, or a distance of 1 mile, and the area ¼ mile south of the road.
- All areas within ¼ mile of the access road to Zzyzx, including the visitor parking lot.
- All areas within ½ mile of Fort Piute.
- All areas within ½ mile of the Kelso Depot.

Groups and Organized Events

Background

Mojave National Preserve has permitted several group activities and organized events in the last few years, including Search and Rescue Training, mounted horse trail rides, Mojave Road historical driving tours, Boy Scout groups, and running/bike relay races.

Plan Actions

A permit is required for all organized events in the Preserve, and for group activities over a certain size. Organized events may include school groups, hiking clubs, jeep tour groups, bicycle rides, motorcycle clubs, hunting clubs, scouting groups, and other similar types of group gatherings. Organized events may be required by NPS regulations (36 CFR 2.50c) to: (1) post a bond covering the costs of the event, such as restoration, rehabilitation cleanup and other costs, and (2) provide liability insurance to protect the United States against liability arising from the event. Casual group activities (non-organized) may also require a permit depending on the number of vehicles (including motorcycles, bicycles and horses) and individuals involved in the activity.

The NPS requires a permit for group activities and organized events because of several issues and concerns that may arise when groups travel and/or camp together. The purpose of the permit is to provide information to the group regarding potential impacts of their activities on park resources, private property or other park visitors. The NPS is also responsible for reviewing the environmental impacts of the activity and ensuring protection of park resources, including threatened and endangered species. The permit serves as the means of requiring information needed for the environmental review, and to stipulate certain conditions to prevent impacts.

The following questions will be reviewed to determine whether a permit is needed:

1. *Is the group activity an "organized event"?* If yes, a special use permit is needed. If no, go to question 2.
2. *Are 15 or less individuals participating in the group activity?* If yes, go to question 4. If no, go to question 3.
3. *Are more than 25 individuals involved in the group activity?* If yes, a special use permit is needed. If no, go to question 4.
4. *Are more than seven vehicles being used by the group?* If yes, a special use permit is needed. If no, a permit is not needed.

If the group size or activity requires that a special use permit be issued (see questions above), then NPS regulations require a fee be charged. Fees for a special use permit are required by regulations to be sufficient to cover all administrative costs in processing them and vary depending on the nature and purpose of the activity and the complexity of the permitting process. Organized events and group activities where the permit process, environmental review and stipulations are fairly simple and no onsite monitoring by NPS staff is deemed necessary will be charged between \$50–200. Organized events and group activities that require extensive stipulations, completion of an environmental assessment or impact statement, and/or require onsite NPS monitoring will be charged the full cost of permit processing and compliance, NPS monitoring costs and may be required to post a bond and show proof of liability insurance. Nonprofit events or group activities that provide education on natural and cultural resources of the desert may be eligible for a partial fee waiver.

Visitor Use Fees

Background

Fees and their use are determined in accordance with the criteria and procedures of the Land and Water Conservation Fund Act of 1965 (sec. 4, 16 U.S.C.A. 4601-6a (Supp., 1974) and section 3, Act of July 11, 1972, 86 Stat. 461), the Recreational Fee Demonstration Program (P.L. 104-134), and regulations in 36 CFR 71. No entrance fees are collected at Mojave. Campground fees of \$12 per site per night are gathered. In addition, the park charges special use permit fees for groups and organized events, and for commercial filming. In April 2000, the National Park Service, in a partnership with the National Park Foundation, announced a new National Parks Pass. A parks pass provides entrance to all national parks for one year at a cost of \$50. Parks selling the pass will be allowed to retain \$35 for use on projects at that park. These passes are sold at all national parks and over the internet via several retail partners. Mojave sells this pass as a public service, even though an entrance fee is not required to enter the Preserve.

Plan Actions

The Preserve will continue to explore options for fee collection revenues consistent with congressional direction. An entrance fee study will be prepared in the future.

Mojave continues to sell a National Parks Pass as a public service, even though an entrance fee is not

required to enter the Preserve. The only other visitor use fees collected in Mojave National Preserve are camping fees for developed campgrounds and the group area at Hole-in-the-Wall. Fees are also collected for special use permits (such as filming, organized group outings, etc.).

RESEARCH AND EDUCATIONAL ACTIVITIES

Research and education are core mission elements of the NPS national goals and of the Preserve's enabling legislation. Congress highlighted these issues in the CDPA with following passages:

These desert wildlands display unique scenic, historical, archeological, environmental, ecological, wildlife, cultural, **scientific, educational** and recreational values used and enjoyed by millions of Americans for hiking and camping, **scientific study** and scenic appreciation. (emphasis added)

Retain and enhance opportunities for scientific research in undisturbed ecosystems.

Education

Background

One of the missions of the NPS is to conduct educational outreach on natural and cultural resource preservation and management. These outreach efforts extend beyond the park boundary to include classrooms of local schools in and around the park unit. Reaching youth in the classroom and educating them on resource preservation and management serves to protect parks from impacts associated with uniformed visitors pursuing activities that may harm park resources. This effort can do more to protect parks through education than an equivalent number of staff simply enforcing regulations in the park.

Parks also serve as ideal classrooms for students to learn about the natural and cultural resource values of the desert. Setting foot on sand dunes, or a cinder cone, or hiking through the Joshua tree forest on Cima Dome, are experiences that cannot be duplicated with video, slides or other means. Mojave National Preserve is an ideal natural classroom for school groups anywhere to experience and study the Mojave Desert.

Plan Actions

Mojave will maintain an active presence in local classrooms throughout the high desert. Park staff in Needles, Baker and Barstow will be made available to make presentations on particular resource topics

or to teach natural or cultural resource sessions as part of a resource preservation curriculum.

To encourage school use, Mojave will provide staff to lead specific ranger walks and talks for school groups as requested. The park will also offer educational activities for school groups at the Kelso Depot visitor center when this facility is operational. Schools will also be encouraged to utilize the park for extended classroom work, such as week long classes over spring break, where schools may bring a class and conduct an entire field class focusing on desert resources.

The University of California through the Granite Mountains Natural Reserve, and California State universities through the Soda Springs Desert Study Center, already promote school educational activities and offer specific classes for students and the general public via cooperative agreements with the park. These efforts will be encouraged and supported by the park by offering staff to assist in conducting specific activities for school groups, providing ranger led walks and talks, and by seeking grants to assist in offering these activities, particularly for low economic areas where schools would normally not be able to afford field trips.

Research and Permits

Background

Mojave has long served as a scientific research area for scientists worldwide. Dozens of research studies have been conducted in the Preserve.

Plan Actions

In recognition of the legislative direction and the scientific value of parks as natural laboratories, researchers will be encouraged to use the parks for scientific studies, whenever such use is consistent with NPS policies and law. The Preserve will promote cooperative relationships with educational and scientific institutions and qualified individuals with specialized expertise that can provide significant assistance to the park. To the extent they are available, NPS facilities and staff assistance may be made available to qualified researchers and educational institutions conducting authorized studies or field classes. Mojave will cooperate with researchers and universities to identify methods and techniques that may be employed to ensure protection of research equipment and plots.

Non-NPS studies are not required to address specifically identified NPS management issues or information needs. However, these studies, including data

and specimen collection, require an NPS research/collecting permit. The studies must conform to NPS policies and guidelines regarding publication of data, conduct of studies, wilderness restrictions, and park-specific requirements pursuant to the terms and conditions of the permit. Projects must be administered and conducted only by fully qualified personnel, and conform to current standards of scholarship. NPS research/collecting permits may include requirements that permittees provide for parks, within certain timeframes, the appropriate field notes, data, information about the data, progress reports, interim and final reports, and publications derived from the permitted activities.

The National Park Service will be responsible for the review and approval of all proposals for research on Preserve lands to ensure that they conform to the management policies and the provisions of 36 CFR 2.5. The superintendent will issue permits for all research and collection. Research that conflicts with current approved research, including long-term study plots that failed to meet NPS standards, would not be approved. All specimens collected from the park must be appropriately curated and have adequate documentation of the specimen, the locality, the geologic context, and other pertinent data. Published research results are required to be provided to the park as a condition of all permits and be made available for use by park staff and the public. In FY 2000 the park issued 28 research and collecting permits.

Natural Resource Collections

Background

Natural resource collections, including non-living and living specimens, and their associated field records, are managed as NPS museum collections. Guidance for collecting and managing specimens and associated field records is found in 36 CFR 2.5 and NPS guidance documents, including the museum handbook.

Plan Actions

Generally, collecting in Mojave would not be permitted if specimens could be obtained elsewhere. Living collections will be managed in accordance with the provisions of a park's resource management plan (when developed), the Federal Animal Welfare Act, and other appropriate requirements. With respect to paleontological resources, any rare or scientifically significant specimens would be collected, or stabilized and protected in situ. Associated scientific data, including geographic, geologic, and stratigraphic information, would be documented

with all fossil collecting activities. Paleontological specimens are also subject to the treatment policies for museum objects.

Commercial application of any specimens, including any components of specimens (natural organisms, enzymes, genetic materials or seeds) collected under an NPS collecting permit must be done in accordance with a cooperative research and development agreement (CRADA). Research results derived from collected specimens are to be used for scientific or educational purposes only and may not be used for commercial purposes unless the permittee has entered into a CRADA with the park. Any commercial products produced will be subject to a royalty of 10%. Sale of collected research specimens or other transfer to third parties is prohibited (Solicitor Memo date 11/3/98).

COMMERCIAL ACTIVITIES

Mineral Development

Background

The Preserve was established by Congress with the provision that mining activities may occur on valid existing claims under all applicable laws and regulations administered by the National Park Service (sec. 508). The Mining in the Parks Act of 1976 (P.L. 94-429) prescribes that all activities resulting from the exercise of valid existing rights on patented and unpatented mining claims within any unit of the national park system shall be subject to regulations developed and administered by the National Park Service. The regulations governing mining on all patented and unpatented claims in park units are found at 36 CFR Part 9A, which requires operators to file a plan of operations with the National Park Service for all mineral related activities. Proposed mining operations must also meet the approval standards provided in the regulations and post a performance bond equivalent to the cost of reclamation before an operation may proceed.

Congress closed Mojave to all new mining claim location and all other forms of appropriation and disposal. Section 507 of the California Desert Protection Act withdrew the area from all forms of entry, appropriation or disposal under the public land laws; from location, entry and patent under the United States mining laws; and from disposition under all laws pertaining to mineral and geothermal leasing and the sale of mineral materials. This provision of the act is subject to valid existing rights.



The California Desert Protection Act also imposes a requirement that validity of unpatented claims be determined prior to approval of any operation (sec. 509). This section also requires an analysis of the environmental consequences of mineral extraction, a determination of the estimated acquisition costs, and the submission to Congress of recommendations on whether any valid or patented claims should be acquired. The park has certified mineral examiners and is reviewing all unpatented mining claims to determine their valid existing rights and, if necessary, to conduct a validity examination to determine if a valuable, economic discovery of mineral exists on the claims.

Currently, there are no active mining operations inside Mojave National Preserve. Two large-scale surface mining operations exist just outside the boundaries of the Preserve. The Molycorp mine, in Mountain Pass, between Clark Mountain and the Mescal Range, is a rare earths mine. Molycorp has operated since the 1950s and recently, issues with contaminated lands as a result of pipeline leakage and spills have surfaced. Molycorp is currently undergoing a revised mining plan environmental impact process, with the Bureau of Land Management as the lead agency.

Viceroy is the other large scale open pit surface mine adjacent to the park, just north of the Piute Range, in the Castle/Hart Mountain area. This very large scale, open pit and cyanide heap leaching gold mine is very visible from the Lanfair Valley area. Although the Bureau of Land Management approved a ten-year extension of the mine in 1998, recently Viceroy has indicated their intention to terminate mining within the next two years.

Plan Actions

The Preserve will manage mineral development activities under existing laws and regulations applicable to such activities.

During the evaluation of the mining proposal, a sensitive resource analysis based on an objective analysis of physical, biological, cultural and visitor use values relative to the project mining impacts would also be initiated. No specific mining is authorized by this general management plan. Each mining proposal is required to submit a detailed mining and reclamation plan and undergo separate environmental impact analysis. Consultation for listed species and cultural resources will occur at that time. When mining is authorized, full reclamation of the site is required upon cessation of mining activity.

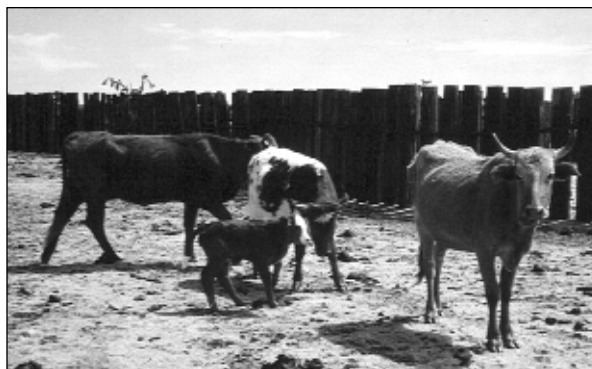
The National Park Service also regulates mineral development on valid nonfederal oil and gas interests in accordance with 36 CFR Part 9B. This involves the review of plans, impact analysis, and permitting of the proposed extraction of oil or gas on property where the surface is held by the federal government, but the mineral rights were retained by the private party when the land was acquired. Whenever a proposed mineral development fails to meet the regulatory approval standards and no alternative development scenario is feasible, the National Park Service will seek funding to initiate acquisition of the mineral rights.

Cattle Grazing

Background

Cattle grazing has been a continuing activity in the Mojave Desert for well over a century. The NPS issued permits to the ranchers in 1995 to allow for continuation of grazing while the general management plan was being prepared. In FY 2001, cattle grazing on over 536,000 acres on portions of 6 previous BLM grazing allotments. Until a grazing management plan is developed, grazing is administered under an allotment management plan developed by the Bureau of Land Management. These plans integrate grazing management on the Preserve and on private and state of California parcels that are leased by the rancher. The plans establishes a grazing system for each allotment, determines the need for range developments (primarily for water), and describes a system for adjusting cattle numbers based on current range conditions. The grazing system is designed to allocate forage based on the amount and type of plant cover, moisture, and other range conditions and forage allocations for other wildlife and burros.

As of March 2001, the Crescent Peaks allotment (1,276 AUMs), the Granite Mountains allotment and permit (4,475 AUMs), the Lanfair Valley allotment



(11,560 AUMs), and the Kessler Springs allotment (7,615 AUMs) have been permanently retired, resulting in a reduction of grazing in the Preserve by 24,926 AUMs (65%) since the Preserve was established.

Four of the remaining grazing permits as of October 2001 in the Mojave National Preserve have adjoining BLM allotments that are managed by the Bureau of Land Management. These are Valley View, Valley Wells, Clark Mountain, and Piute Valley. In an amendment decision to their California Desert Conservation Area plan in late 1999, BLM agreed to retire the remnant portions of the Lanfair Valley and Piute Valley allotment if the permit is acquired and the adjoining NPS grazing permit is retired. The fate of potential remnants of the Valley View, Valley Wells, and Clark Mountain allotments are being evaluated by the BLM in a separate plan amendment EIS.

Plan Actions

Mojave's overall management goal is to achieve the permanent retirement of grazing. The California Desert Protection Act directs the Secretary of the Interior to make the acquisition of "base property" from willing sellers a priority above all other acquisitions in the Preserve. If ranchers notify the superintendent of their willingness to sell base property, the superintendent will immediately notify the Secretary of the Interior of the priority acquisition and request Land and Water Conservation Fund funding from Congress. The Preserve will also work with conservation organizations to purchase grazing permits and/or fee property from willing sellers. Once a grazing permit is purchased and the new owners (i.e. conservation organizations) requested retirement, it will be permanently retired. Cattle livestock grazing will no longer be an authorized use in retired areas for any reason.

When grazing permits are retired, ranching developments eventually be removed and site restoration undertaken, subject to environmental and cultural

compliance, including a determination of national register eligibility and section 106 compliance on all cultural features over 50 years old. The park will work with conservation organizations to ensure that willing seller grazing permits in desert tortoise critical habitat receive first consideration and that water rights are acquired with the permit.

The NPS portions of the Clark Mountain and Valley Wells grazing allotments will be acquired via third party conservation groups and retired. Cattle grazing will be removed from the area and the boundary of the Clark Mountain unit will be fenced. These permits are small pieces (about 20%) of larger BLM grazing allotments that mostly lie outside the Preserve. The Clark Mountain permit contains 371 AUMs and covers 17,500 acres. The Valley Wells permit contains 853 AUMs and covers 43,600 acres. Ranching developments would be removed and natural springs would be restored.

While acquisitions are being pursued, and for permit holders unwilling to sell, the privilege of grazing cattle on lands in the Preserve will otherwise continue to be exercised at no more than the current level (as of October 31, 1994). Grazing will be managed over the short-term under existing BLM allotment management plans, and subject to applicable NPS regulations and policies, relevant FWS Biological Opinions, and under the following conditions:

- Emphasis will be on the preservation and protection of resources and the reduction of impacts. Resource protection would be given priority over grazing activities. Grazing may be excluded from some areas if needed to protect sensitive species or habitat.
- Additional cattle grazing using an ephemeral preference above the perennial AUMs identified below for each permit will not be considered.
- Grazing will not be allowed where perennial plant utilization exceeds 30%. Grazing shall be curtailed to protect perennial plants during severe or prolonged drought.
- Grazing use will be restricted in desert tortoise critical habitat from March 15 to June 15, if adequate precipitation has not occurred to produce ephemeral plant production of 230 lbs. per acre (air dry weight). This number may be adjusted if additional research suggests a need to do so.
- Water developments will be turned off in desert tortoise critical habitat when not in use, or to move cattle off areas not having sufficient perennial or ephemeral forage. Modifications to

discourage raven use may be required.

- In cooperation with the BLM, USGS and park research communities, annual precipitation amounts and timing would be monitored in recommended locations to determine if ephemeral plant production can reasonably be expected to produce forage sufficient to allow cattle grazing. If not, cattle will be removed from desert tortoise critical habitat by March 15 of each year. The Preserve will evaluate the effectiveness of using predictive models developed by USGS and other researchers.
- Supplemental feeding (using hay or other feed) will not be allowed in accordance with existing Biological Opinions for desert tortoise. Use of feeding supplements (protein and/or salt) will be considered on a case-by-case basis.
- Water developments on acquired permits will be assessed for removal and the area restored to natural conditions.
- Ranching developments on retired permits will be removed unless determined to have historical or other value, and do not otherwise impact native wildlife.
- Ranching developments in wilderness will be reviewed for their historical significance and current need. If developments are determined necessary for current grazing permits, access will normally be allowed only via foot or horseback. Motorized access will be determined on a case-by-case basis using the minimal tool analysis described under the wilderness section.
- Permittees will be required to maintain all ranching developments associated with their grazing permits, including corrals, fences, pipelines, windmills, cattle guards, tanks, etc. at their expense. Abandoned property must be removed from the Preserve by the permittee. If not removed within timeframe identified, the NPS may charge the permittee for removal costs. No new ranching developments will be permitted unless it was determined to be beneficial to the flora and fauna, and not result in an increase in grazing over the levels current as of October 31, 1994.
- Until the grazing management plan is finalized, grazing fees will be charged on a per AUM basis using the same formula as the BLM, which is subject to annual review. In addition, a fee will be assessed for NPS costs in reviewing and issuing of a special use permit in accordance with NPS policy. Fees collected as reimbursement for special use permit issuance may be used to off-

set costs related to park management of the special use permit. Fees collected based on AUMs will be used for any purpose reasonably related to management of the grazing program, with priority given desert tortoise conservation efforts.

- Grazing permits will be reissued annually for one-year terms.
- NPS will monitor range conditions and long term plant community changes using locations and methodology currently being evaluated. Cattle may be removed from an area for an extended period if monitoring indicates that type conversion of the plant community may be occurring.
- NPS will not increase AUMs when Catellus and State lands within the permit area are acquired. However, no fencing will be required to exclude existing authorized cattle from using the acquired parcels.

Any permit that is not retired will be managed pursuant to an NPS grazing management plan. This activity plan will tier from the overall management strategy presented herein and will address specific grazing management strategies, conditions, standards, resource protection criteria, range developments, monitoring, and other program needs. Separate environmental compliance will be prepared on this plan.

Filming

Background

Permits for commercial operations such as moviemaking and guided recreational tours have been applied for and granted within the Preserve. At this time, the number of permits applied for is relatively low. For instance, in FY99 only one filming permit was issued.

Plan Actions

Filming for commercial or educational purposes may be authorized, subject to NPS policies and regulations governing such activities, including wilderness restrictions. A special use permit is required for all filming activities and a fee will be assessed. Filming activities will be subject to the same rules and regulations as other activities, including no offroad driving. Filming may not be allowed in desert tortoise critical habitat during the active periods in the spring and fall, depending on the nature of the particular film shoot. All costs associated with desert tortoise surveys and onsite monitors during filming will be borne by the permittee.

Solid Waste Disposal

Background

Federal law and NPS regulations (36 CFR Part 6) prohibit solid waste disposal, including existing and new landfills, in all units of the national park system. The park hauls all solid waste generated by visitors and park operations to an approved site outside the Preserve. The Baker landfill was closed by state law in 1997. The site was recontoured and fenced (including tortoise proof fencing) and is being monitored by the county. Small private dumps and illegal dumping has occurred at a number of sites throughout the Preserve. Several of these have been cleaned up by the National Park Service and this process is ongoing as cultural clearance is completed.

Plan Actions

The park will continue to haul solid waste generated by visitors and park operations to an approved site outside the Preserve. Recycling opportunities will be fully explored and implemented wherever feasible. Mojave will work cooperatively with Baker and the county to find locations outside the Preserve to relocate the existing transfer site and sewage lagoons.

Visitor Services

Background

At this time, the Cima Store is the only facility-based commercial operation in the Preserve. The privately operated store on private land has a limited number of items and continues to serve customers traveling on the Kelso-Cima Road.

Special use permits are issued for commercial services such as guided tours and hunting guide services. Currently, the park issues permits annually to 2 licensed hunting guides to provide guiding service for bighorn sheep hunts.

Several commercial facilities outside the Preserve offer lodging, food, and other items. The town of Baker has several motels, gas stations, restaurants, fast-food services, and markets. Small facilities at Halloran Summit and the Cima Road exits off Interstate 15 offer various visitor services. Primm, Nevada, about 15 miles from the Preserve's north boundary, contains a major resort/casino. Nipton offers a small amount of lodging and a few camping spaces. Goffs has a small restaurant and Fenner has a gas station/market. Needles offers a broad range of services to visitors.

Plan Actions

A concession contract to operate a small food service facility in the Kelso Depot is being considered. As visitation increases, a facility may be desirable outside the Depot in another building that will offer limited emergency grocery items. No other food service facilities are being considered on park lands. The park will not develop lodging facilities for visitors on park lands, but will rely on gateway communities to provide these services.

Some level of commercial services may be sought in the Kelso Depot, Cima and Hole-in-the-Wall areas to provide compatible recreation services and equipment for visitors. Services might include backcountry jeep tours (including the Mojave Road) and horseback rides. Equipment rentals that could provide for enhanced visitor use might include bicycle and camping equipment rentals. Currently, the park issues permits annually to two licensed hunting guides who provide guiding service for bighorn sheep hunts. Commercial towing services that desire to provide service inside the park boundary will need to apply for a commercial use license and post a performance bond.

MILITARY ACTIVITIES

Background

The Preserve is within 100 miles of five U.S. Department of Defense facilities having air operations: National Training Center at Fort Irwin, China Lake Naval Air Weapons Station, Marine Corps Air-Ground Combat Center, and Air Force Bases at Edwards and Nellis. Military aircraft from these facilities occasionally use airspace over the Preserve.

Mojave is subject to irregular and occasional such use along specified training routes. A small area of the park near Baker is under FAA designated special use airspace, called the "Silver" military operations area (MOA). This special use airspace and IR (instrument) and VR (visual) routes and are created by the Federal Aviation Administration to warn other civil aviation pilots that high speed (over 250 knots), low level (down to 200 feet above ground level) aircraft may be encountered. Slower military aircraft, such as helicopters, may be encountered anywhere over the Preserve. The Desert Managers Group has established an interagency Overflight Working Group comprised of land managers and military staff to identify and attempt to resolve overflight issues.

Plan Actions

The California Desert Protection Act (CDPA) authorizes continued low-level overflights by military aircraft over new parks and wilderness areas. Section 802 provides:

Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude low-level overflights of military aircraft over such units, including military overflights that can be seen or heard within such units.

Mojave will monitor military overflights and attempt to document where conflicts with visitor use or resource protection may exist. The park will seek to minimize such conflicts wherever possible, while recognizing the military's mission and authorized use. The park will work closely with the airspace manager and the Overflight Working Group to identify conflicts and implement solutions.



Partnerships and Other Relationships

The National Park Service recognizes that cooperation with other land managers, tribal governments, organized groups, universities and private landowners can serve to accomplish much greater ecosystem sustainability and achievement of park management goals than actions taken solely by park staff. Therefore, the park will pursue opportunities that will result in the development of cooperative agreements and partnership agreements with stakeholders interested in assisting with the protection of park resources and providing for visitor services.

One such example is the cooperative agreement the NPS developed with the Fund for Animals. This agreement provides for this organization to accept, for purposes of adoption, of up to 300 feral burros per year, during our removal efforts. This effort provides an additional avenue for captured burros to be relocated as soon as possible, and at minimum cost to taxpayers.

EDUCATION AND RESEARCH PARTNERSHIPS

Background

One of the missions of the National Park Service is to conduct educational outreach on natural and cultural resource preservation and management. These outreach efforts extend beyond the park boundary to include classrooms of local schools in and around the park unit. Reaching youth in the classroom and educating them on resource preservation and management serves to protect parks from impacts associated with uninformed visitors pursuing activities that may harm park resources. This effort can do more to protect parks through education than an equivalent number of staff simply enforcing regulations in the park. To fulfill this part of our mission, Mojave maintains an active presence in local classrooms, currently primarily in Needles and Baker.

Park staff also perform outreach through other activities such as local fairs, presentations to local clubs and groups and through the media.

Parks serve as ideal classrooms for students to learn about the natural and cultural resource values of the desert. Setting foot on sand dunes, or a cinder cone, or hiking through the Joshua Tree forest on Cima Dome, are experiences that cannot be duplicated with video, slides or other means. Mojave National Preserve is an ideal natural classroom for school groups anywhere to experience and study the Mojave Desert. To encourage school use, Mojave provides staff to lead specific ranger walks and talks for school groups as requested. Schools



are also be encouraged to utilize the park for extended classroom work, such as week long classes over spring break, where schools may bring a class and conduct an entire field class focusing on desert resources.

The University of California through the Granite Mountains Natural Reserve, and California State Universities through the Soda Springs Desert Studies Center, also promote school educational activities and offer specific classes for students and the general public via cooperative agreements with the park.

The University of California owns and maintains a series of reserves throughout California. The purpose of these reserves is to manage, protect and preserve sites that are undisturbed examples of California's extraordinary and diverse habitats for long term scientific research and for public education. On federal lands, this state purpose must be balanced with the park purpose and mission of protecting resources for visitor enjoyment. The National Park Service strongly supports and encourages the use of the Reserve for research and educational activities, consistent with applicable laws and regulations.

The Granite Mountains Natural Reserve is a 9,000-acre area in the southeast corner of the Preserve recognized by Congress in the CDPA. The University of California owns fee title to 2,200 acres of the Reserve, while most of the remainder is owned by the federal government and managed by the National Park Service. A 20-acre patented mining claim is also privately held inside the reserve.

The Soda Springs Desert Study Center operates from facilities and land at Zzyzx that are owned by the federal government and are under the management authority of the NPS by virtue of their inclusion within the Mojave National Preserve. Many historic structures are located at this desert oasis,

which has served as a desert research and educational facility for over twenty years. The NPS could benefit from a partnership with CSU to provide for continued maintenance and security of the facilities, offering of educational activities on desert resources for the public, and to attract scientific interests to pursue research in the Preserve.

Research and education are core mission elements of the NPS national goals and of the Preserve's enabling legislation. Congress highlighted these issues in the CDPA with following passages:

These desert wildlands display unique scenic, historical, archeological, environmental, ecological, wildlife, cultural, **scientific, educational** and recreational values used and enjoyed by millions of Americans for hiking and camping, **scientific study** and scenic appreciation. (emphasis added)

Retain and enhance opportunities for scientific research in undisturbed ecosystems.

Plan Actions

In recognition of the legislative direction and the scientific value of parks as natural laboratories, investigators will be encouraged to use the parks for scientific studies whenever such use is consistent with NPS policies and law. The Preserve will promote cooperative relationships with educational and scientific institutions and qualified individuals with specialized expertise that can provide significant assistance to the park. To the extent they are available, NPS facilities and staff assistance may be made available to qualified researchers and educational institutions conducting authorized studies or field classes.

The Preserve staff will continue to pursue partnerships with school teachers and university field offices at the Soda Springs Desert Study Center, the Granite Mountains Natural Reserve, and others to provide students and the public with current information on the cultural and natural elements of the Preserve. Where possible, field classes and seminars will be offered with assistance from California State consortium and University of California systems and other education providers. Educational programs will be expanded as staffing permits. Programs and information will be developed for visitors with little previous exposure to desert areas. Programs will seek to make resources and experiences more accessible to diverse audiences while retaining primitive conditions and protecting resources. A special educational outreach effort will be made to reach students that might otherwise not have an opportunity to visit national parks.

Soda Springs Desert Study Center. In accordance with CDPA (section 514), a cooperative management agreement will be developed between the National Park Service and California State University (CSU) to:

- provide for the management of the facilities at the Soda Springs Desert Study Center
- ensure the continuation of desert research and educational activities, consistent with laws applicable to NPS units.

A cooperative agreement will be used to define each entity's roles and responsibilities under the following guidance and framework:

- the NPS is ultimately responsible for the protection and management of all natural and cultural resources
- general public use and visitor access to the site will be supported, with opportunities for interpretation, self-guided trails and programs encouraged
- the Preserve will retain oversight and permitting responsibility for research and educational use
- the Preserve will retain authority and responsibility for law enforcement, interpretation and environmental education
- CSU will retain maintenance and security responsibility for most buildings and structures
- Modifications to existing structures or the addition of new structures may not occur without NPS permitting and compliance
- Mojave will have access to the facilities for public or agency functions
- a site management plan will be developed in cooperation with CSU
- a cooperative agreement with California Fish and Game, Fish and Wildlife Service, CSU and the NPS will be pursued to establish management goals, activities and responsibilities regarding the endangered Mohave tui chub population of fish

Granite Mountains Natural Reserve. In accordance with CDPA, section 513, a cooperative management agreement has been developed between the National Park Service and the University of California to:

- provide for the management of lands within the Granite Mountains Natural Reserve
- to ensure the continuation of arid lands

research and educational activities, consistent with laws applicable to NPS units.

The designated wilderness within the reserve will be managed for wilderness values. The discharge of weapons in the natural reserve will continue to be prohibited by San Bernardino county ordinance and the National Park Service.

The objectives of the cooperative management agreement are:

- To develop, coordinate and implement research, inventorying and monitoring, and public education programs and projects to protect, restore and explain the natural, cultural, recreational and wilderness resources of the park and the Mojave desert ecosystem.
- To develop scientific knowledge through research to guide management decisions concerning the conservation, preservation and restoration of natural, cultural and recreational resources of the park and the Mojave desert ecosystem.
- To ensure continuation of the University's arid lands research and educational activities.
- To develop, coordinate and implement, as may be jointly agreed to, a general program of education and public outreach related to the educational and research needs of the University and the resource management and interpretive needs of the park.
- To make available to each other, when mutually agreed to and in accordance with the provisions of this agreement, assistance and support, including but not limited to, funds, supplies, equipment, facilities, staff, etc. to carry out programs, projects and activities related to the objectives and purposes of the agreement.

The National Park Service recognizes the concern with protection of long term research plots, and will work with the research community to address issues and concerns associated with their research and educational activities in the Preserve and the natural reserve.

Cooperative Ecosystem Studies Units. The National Park Service has a long history of association with universities near parks to promote research and educational activities in parks. One such unit has been located on the campus of the University of Nevada at Las Vegas for over 25 years. These units were once staffed by NPS scientists. These scientists

now work for the Biological Resources Division of the U.S. Geological Survey, and the mission has evolved to be broader in scope than just parks. The new concept of Cooperative Ecosystem Studies Units (CESU) is being pursued nationally, with the goal of four new units being established in FY 2000. One of these new units was recently established at the University of Arizona to serve the southwest desert area. Mojave supports the retention of the existing CESU at UNLV, and embraces the newer CESU concept, and will utilize them as one mechanism to provide research, inventory and monitoring capabilities to meet park objectives.

GATEWAY COMMUNITIES

Background

Communities on the access routes to the Preserve provide the best opportunity for visitors to secure food, lodging, and other services prior to enjoying their park visit. The park currently operates information centers in Baker and Needles, with employees living in both locations.

Plan Actions

The park will encourage and support economic growth of gateway communities in ways that complement the Preserve's mission and management objectives. Some examples of partnership agreements that could be considered include:

- Cooperative ventures to provide visitor information and services
- Zoning or planning to protect solitude, natural quiet, pristine night sky, and prevent unsightly billboards
- Sharing of data and expertise

CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

Background

Within the boundary of Mojave National Preserve is the Providence Mountains State Recreation Area, managed and operated by the State of California. The prime attraction is Mitchell Caverns, where guided tours are offered. A developed campground with six campsites and RV camping is also available.

Plan Actions

The National Park Service has a statewide cooperative agreement with the Department of Parks and Recreation that addresses cooperative management

issues at several locations throughout California. The Preserve will also seek to develop a local partnership with the State to:

- share staff, expertise, facilities and other resources for cooperative resource management, interpretation, law enforcement and maintenance activities.
- share radio system repeater sites and equipment
- collaborate on signing on interstates and park roads
- collaborate on planning efforts for visitor service programs

NATIVE AMERICAN INTERESTS AND RELATIONSHIPS

Background

Tribal Relationships. For millennia, American Indian peoples have lived within the region of the present Preserve, using the resources and lands to sustain their lives and cultures. During the 1950s and 1960s, Federal Indian Lands Claims court cases involving Chemehuevi, Mohave, and Owens Valley Paiute tribes included documented occupation and use of many mountain ranges, valleys, and resources in the Mojave Desert region. Maps illustrating Chemehuevi use of the lands now in Mojave National Preserve were accepted by Mohave tribal officials as well. Individual members of the Mohave Tribe have family historical information on early 20th century land uses in or near Preserve lands. Today's tribal governments and communities historically associated with the region in which the Preserve is located include:

- The **Chemehuevi Indian Tribe Reservation** (30,600 acres) was established by presidential executive order in 1971. Federal recognition was received in 1970. Economic support derives from land leases, retail businesses, tourism and recreation services, and gaming. Tribal enrollment is about 500 persons, 300 of whom reside on or near the Havasu Lake, California, developed area.
- **Mohave Indian Tribe Reservation** lands lie in Arizona, California, and Nevada, but tribal offices and some residential areas are in Needles, California. In 1864 a reservation was established from a former military fort reserve and nearby traditional lands. Economic developments relating to gaming, tourism, recre-

ation, and retail business with considerable agricultural land leases provide tribal and individual incomes. The tribe population numbers approximately 1,000, with some 500 people living on or near reservation lands.

- The **Las Vegas Piute Tribe** is composed of "Nuwuvi" people, called Paiute by others, who have inhabited present-day southern Nevada from pre-European time to the present. In 1911 a small parcel of trust land was established near the town of Las Vegas. Today, the tribe owns the original 16-acre area and a 3,800-acre area north of metropolitan Las Vegas. The tribe numbers about 100 people who obtain their economic support from tribal tourism enterprises, retail sales, and wage work.
- Located in San Bernardino County, California, the **San Manuel Tribal Community** is composed of historic Serrano peoples who occupied the mountainous areas in present-day Riverside and San Bernardino counties, with their related neighbors, the various Cahuilla communities. The 660-acre reservation was established by Congress in 1893. The tribe consists of about 85 persons residing on or near trust lands. Tribal enterprises include a casino and a curation facility.

The opportunity to consult with American Indians arises from the historic as well as current government-to-government relationship of the federal government with them and from the related federal trust responsibility to help conserve tribal resources. Tribal sovereignty is involved and supported by the government-to-government relationship. The government-to-government relationship stems from treaties, laws, and other legal entities, including presidential executive orders, proclamations, and memorandums; federal regulations; and agency management policies and directives. Examples are:

- The Native American Graves Protection and Repatriation Act of 1990 (Public Law 101-601);
- The National Historic Preservation Act of 1966 (Public Law 89-665, as amended by Public Law 102-575);
- The Indian Self-Determination Act and Education Assistance Act of 1975 (Public Law 93-638 and Public Laws 103-413, 103-435, and 103-437);
- The Presidential Memorandum entitled "Government-to-Government Relations With

Native American Tribal Governments" (April 29, 1994) and Executive Order 13007 "Indian Sacred Sites" (May 24, 1996).

Traditional Cultural and Religious Activities.

Section 705 of the California Desert Protection Act recognizes past uses of parks and wilderness areas by Indian people for traditional cultural and religious purposes, and ensures access for these uses. The Act also provides for temporary closures to the general public, upon request of an Indian tribe or Indian religious community, of one or more specific portions of the park or wilderness area in order to protect the privacy of such activities.

Sacred Sites. Executive Order 13007, entitled "Indian Sacred Sites," states that each federal government agency with responsibility for the management of federal lands "shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and (2) avoid adversely affecting the physical integrity of such sacred sites."

Indian Trust Resources. The federal government is obligated to protect, conserve, and manage Indian trust lands, water and fishing interests, and traditional use areas and other trust resources. Secretarial Order 3175, "Departmental Responsibilities for Indian Trust Resources (August 17, 1994)," required each bureau and office in the Department of the Interior to identify potential effects of departmental activities upon Indian trust resources and mandated meaningful consultation with tribes where activities directly or indirectly affect these resources. Responding to this order, the National Park Service adopted a document, "Carrying Out the Government-to-Government Relationship with American Indians and Alaska Natives in the National Park Service" (October 12, 1995), committing the NPS to a policy of interacting directly with tribal governments regarding the potential impacts of proposed Service activities on Indian tribes and trust resources.

Plan Actions

Tribal Relationships. In the conduct of government-to-government relations, National Preserve managers aim for effective communication and the sharing of information and knowledge about mutual interests in Preserve planning and operations and in managing cultural and natural resources. Thus, the National Park Service will consult on a regular



basis with historically affiliated tribes to accomplish its programs in ways that respect their traditions, beliefs, practices, and other cultural values. NPS staff will continue to work with the tribes in ways such as the following:

- Consulting on any future National Preserve planning documents
- Consulting on National Preserve operations as they may affect any economic interests of the tribes
- Consulting on National Preserve operations as they may affect any joint law enforcement efforts or other intergovernmental concerns
- Consulting on resource management, especially cultural resource management such as identifying and protecting archeological and ethnographic sites
- Consulting on cultural matters, such as National Preserve interpretation of Indian history and heritage

Any archeological, ethnographic, and historical collections of Mojave National Preserve would be managed in accordance with the *NPS Management Policies* (2001), its *Museum Handbook* (1998); and its *Cultural Resource Management Guidance* (Director's Order 28: 1998). Any human remains of Indian affiliation found within the National Preserve, now and in the future, would be treated under the regulations of the Native American Graves Protection and Repatriation Act of 1990, as would any artifacts of possible cultural patrimony. The Director's Order 71, *Relationships with American Indians and Alaska Natives* (1999), is also being developed and would provide overall guidance.

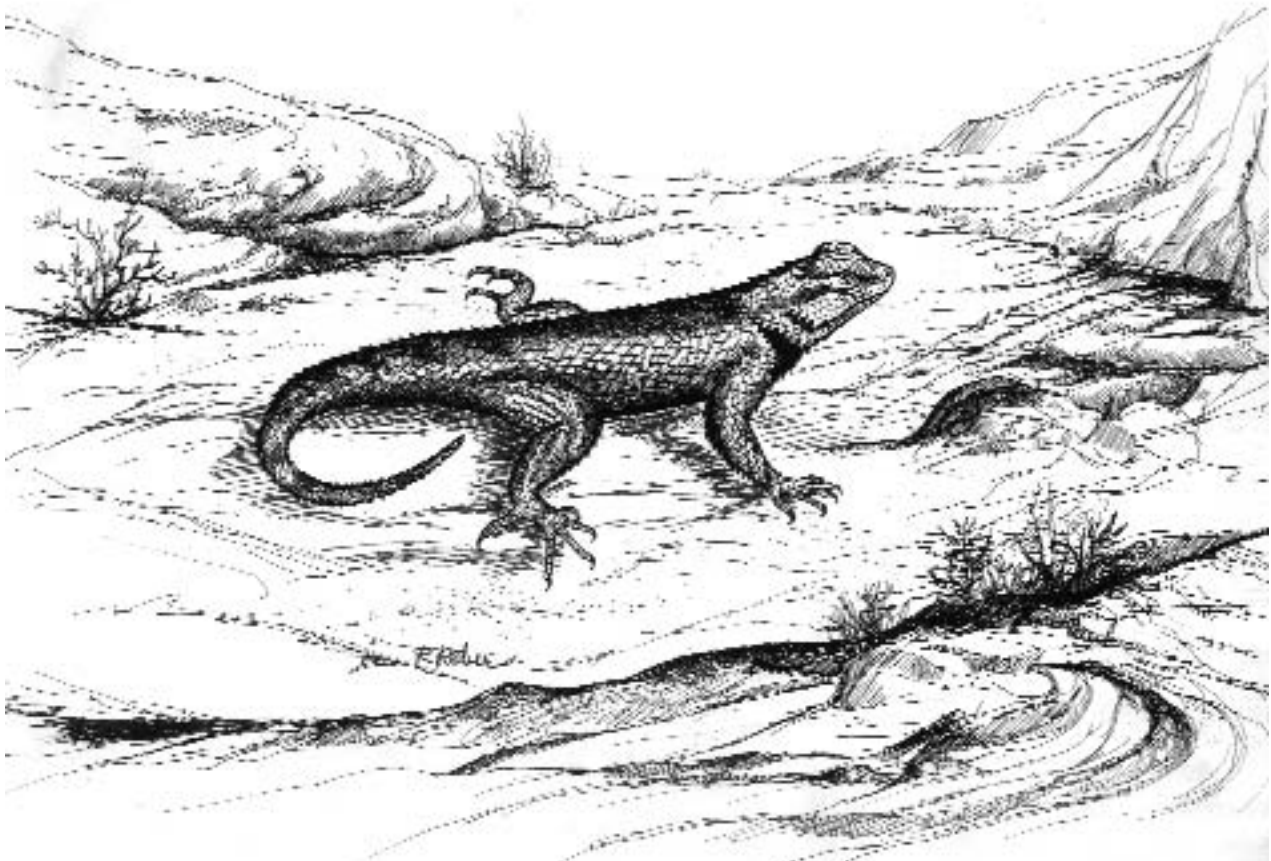
The National Park Service recognizes the importance of the cultural resources that are within the National Preserve boundaries to the local American Indian peoples. Accordingly, the National Park Service will continue to coordinate its management of these resources with the appropriate tribal officials and to consult with them on any matters that might affect their interests. The National Park Service also recognizes the economic impact that its management decisions could have on the tribes and will continue to work and consult with the tribes on a government-to-government basis to ensure that their interests in these areas are properly considered before any relevant NPS decisions are made.

Traditional Cultural and Religious Activities. Any closures are to be for the smallest area practicable and for the minimum necessary period. Access must

be consistent with the purpose and intent of the American Indian Religious Freedom Act (Public Law 95-341; 42 U.S.C. 1996), and the Wilderness Act, if applicable.

Sacred Sites. As part of its ongoing dialogue with the tribal governments and communities historically associated with lands in and near the Preserve, the National Park Service will seek to identify, preserve, and manage sacred sites.

Indian Trust Resources. As part of its ongoing dialogue with the tribal governments and communities historically associated with lands in or near the Preserve, the National Park Service will seek to identify, preserve, and manage "Indian trust resources" as specified in the aforementioned departmental order and corresponding NPS policy document.



Plan Implementation

STAFFING AND BUDGET

A park superintendent provides overall management of the park. The park is organized into five teams: Management, Administration, Maintenance, Resources Management, Interpretation, and Visitor Protection. Staff will be supplemented and/or supported using special project funds, contracts, assistance or expertise of various other NPS parks and central offices, and/or other partners, or organizations. The park's base operating budget in fiscal year 2001 is \$3,660,000, which funds a workforce of approximately 50 positions. This workforce will be supplemented by volunteers and special project and program funds distributed by the National Park Service Regional and Washington offices. Achieving our annual performance goal targets is critically dependent on our base funding and on additional project funds, volunteer assistance, partnerships and donations.

To fully implement the management plan over the 10-15 year life of the plan, assuming that the activities proposed will be undertaken and visitor use increases, an additional estimated 37 staff will be needed. This will require the addition of approximately \$2.7 million per year for salaries, benefits, administrative expenses (space, utilities, vehicles, etc.) and project funds. The cost of funding all proposed facilities and activities identified will be an additional \$14.9 million.

The majority of additional staff will be needed in resources management, visitor services and maintenance. However, such an increase will require an increase in administrative support as well. Approximately 14 positions are needed to fully maintain and operate the Kelso Depot seven days per week as an interpretive and visitor information facility. These positions will be interpretive rangers, visitor use assistants, protection rangers and maintenance positions. Specialized resource positions are also necessary to carryout the resource management programs proposed. Approximately 14 additional resource positions including wildlife biologists, hydrologists, historians and archeologists, restoration specialists and land resources specialists, are critical to the successful implementation of this plan. As visitation increases over the life of this plan, additional protection rangers and maintenance positions are also necessary, beyond those at Kelso Depot, to provide essential visitor and resource protection services. As overall staff size increases at the park, critical administrative support positions will

have to be added to provide clerical, purchasing, contracting, budget, hiring and computer expertise.

ESTIMATED COST OF PROPOSED FACILITY DEVELOPMENT AND MAJOR PROGRAMS

The estimated costs associated with major new programs and proposed facility improvements, replacement, rehabilitation and new construction are provided in table 14. Construction and planning cost estimates are conceptual estimates only. These are costs of similar types of facilities and past NPS experience derived from contract data. The estimates include indirect costs added to cover such things as design services, contract supervision, and contingencies. They also take into account the cost of contracting for such services in a remote setting, seasonal constraints, labor availability, and wage rates. The costs are based on year 2000 values.

The estimated costs of acquiring private lands and mining claims are not yet available. No comprehensive evaluation of land acquisition costs has been undertaken in accordance with NPS policy and therefore cannot be estimated at this time. The cost of acquiring property involves title searches, appraisals, relocation costs, and fair market value of the property. These specific costs will be available only on a property by property basis and will need to be determined based on current market values. An approved cost estimate for land protection will be prepared at a later date by the Washington office.



